

BIOTECHNOLOGY  
SYSTEMS  
BRANCH



04C0  
02-09-01

## RAW SEQUENCE LISTING ERROR REPORT

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) detected errors when processing the following computer readable form:

Application Serial Number: 09/759,508

Source: OIPE

Date Processed by STIC: 1-29-01

THE ATTACHED PRINTOUT EXPLAINS DETECTED ERRORS.

PLEASE FORWARD THIS INFORMATION TO THE APPLICANT BY EITHER:

- 1) INCLUDING A COPY OF THIS PRINTOUT IN YOUR NEXT COMMUNICATION TO THE APPLICANT, WITH A NOTICE TO COMPLY or,
- 2) TELEPHONING APPLICANT AND FAXING A COPY OF THIS PRINTOUT, WITH A NOTICE TO COMPLY

FOR CRF SUBMISSION QUESTIONS, PLEASE CONTACT MARK SPENCER, 703-308-4212.

FOR SEQUENCE RULES INTERPRETATION, PLEASE CONTACT ROBERT WAX, 703-308-4216.

PATENTIN 2.1 e-mail help: [patin21help@uspto.gov](mailto:patin21help@uspto.gov) or phone 703-306-4119 (R. Wax)

PATENTIN 3.0 e-mail help: [patin3help@uspto.gov](mailto:patin3help@uspto.gov) or phone 703-306-4119 (R. Wax)

TO REDUCE ERRORED SEQUENCE LISTINGS, PLEASE USE THE CHECKER VERSION 3.0 PROGRAM, ACCESSIBLE THROUGH THE U.S. PATENT AND TRADEMARK OFFICE WEBSITE. SEE BELOW:

### Checker Version 3.0

The Checker Version 3.0 application is a state-of-the-art Windows based software program employing a logical and intuitive user-interface to check whether a sequence listing is in compliance with format and content rules. Checker Version 3.0 works for sequence listings generated for the original version of 37 CFR §§1.821 - 1.825 effective October 1, 1990 (old rules) and the revised version (new rules) effective July 1, 1998 as well as World Intellectual Property Organization (WIPO) Standard ST 25.

Checker Version 3.0 replaces the previous DOS-based version of Checker, and is Y2K-compliant. Checker allows public users to check sequence listings in Computer Readable form (CRF) before submitting them to the United States Patent and Trademark Office (USPTO).

Use of Checker prior to filing the sequence listing is expected to result in fewer errored sequence listings, thus saving time and money.

Checker Version 3.0 can be down loaded from the USPTO website at the following address:

<http://www.uspto.gov/web/offices/pac/checker>

**BEST AVAILABLE COPY**

Input Set : A:\00786.381002.SEQLIST.TXT  
Output Set: N:\CRF3\01292001\I759508.raw

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4 <110> APPLICANT: Fishman, Mark C.
6 <120> TITLE OF INVENTION: Methods for Diagnosing and Treating
7 Heart Disease
9 <130> FILE REFERENCE: 00786/381002
C--> 11 <140> CURRENT APPLICATION NUMBER: US/09/759,508
C--> 11 <141> CURRENT FILING DATE: 2001-01-12
11 <150> PRIOR APPLICATION NUMBER: US 60/175,787
12 <151> PRIOR FILING DATE: 2000-01-12
14 <160> NUMBER OF SEQ ID NOS: 11
16 <170> SOFTWARE: FastSeq for Windows Version 4.0

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Does Not Comply  
Corrected Diskette Needed  
See P. 27

1391	<210>	SEQ ID NO: 2																	
1392	<211>	LENGTH: 26926																	
1393	<212>	TYPE: PRT																	
1394	<213>	ORGANISM: Homo sapiens																	
1396	<400>	SEQUENCE: 2																	
1397	Met	Thr	Thr	Gln	Ala	Pro	Thr	Phe	Thr	Gln	Pro	Leu	Gln	Ser	Val	Val			
1398	1				5					10					15				
1399	Val	Leu	Glu	Gly	Ser	Thr	Ala	Thr	Phe	Glu	Ala	His	Ile	Ser	Gly	Phe			
1400				20					25					30					
1401	Pro	Val	Pro	Glu	Val	Ser	Trp	Phe	Arg	Asp	Gly	Gln	Val	Ile	Ser	Thr			
1402				35				40					45						
1403	Ser	Thr	Leu	Pro	Gly	Val	Gln	Ile	Ser	Phe	Ser	Asp	Gly	Arg	Ala	Lys			
1404		50					55					60							
1405	Leu	Thr	Ile	Pro	Ala	Val	Thr	Lys	Ala	Asn	Ser	Gly	Arg	Tyr	Ser	Leu			
1406	65					70					75					80			
1407	Lys	Ala	Thr	Asn	Gly	Ser	Gly	Gln	Ala	Thr	Ser	Thr	Ala	Glu	Leu	Leu			
1408					85					90					95				
1409	Val	Lys	Ala	Glu	Thr	Ala	Pro	Pro	Asn	Phe	Val	Gln	Arg	Leu	Gln	Ser			
1410				100					105					110					
1411	Met	Thr	Val	Arg	Gln	Gly	Ser	Gln	Val	Arg	Leu	Gln	Val	Arg	Val	Thr			
1412				115				120					125						
1413	Gly	Ile	Pro	Thr	Pro	Val	Val	Lys	Phe	Tyr	Arg	Asp	Gly	Ala	Glu	Ile			
1414		130					135					140							
1415	Gln	Ser	Ser	Leu	Asp	Phe	Gln	Ile	Ser	Gln	Glu	Gly	Asp	Leu	Tyr	Ser			
1416	145					150					155					160			
1417	Leu	Leu	Ile	Ala	Glu	Ala	Tyr	Pro	Glu	Asp	Ser	Gly	Thr	Tyr	Ser	Val			
1418					165					170					175				
1419	Asn	Ala	Thr	Asn	Ser	Val	Gly	Arg	Ala	Thr	Ser	Thr	Ala	Glu	Leu	Leu			
1420					180				185					190					
1421	Val	Gln	Gly	Glu	Glu	Val	Pro	Ala	Lys	Lys	Thr	Lys	Thr	Ile	Val				
1422			195					200					205						
1423	Ser	Thr	Ala	Gln	Ile	Ser	Glu	Ser	Arg	Gln	Thr	Arg	Ile	Glu	Lys	Lys			
1424		210					215					220							

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 PATENT APPLICATION: US/09/759,508                      TIME: 13:24:54

Input Set : A:\00786.381002.SEQLIST.TXT  
 Output Set: N:\CRF3\01292001\I759508.raw

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1425 Ile Glu Ala His Phe Asp Ala Arg Ser Ile Ala Thr Val Glu Met Val
1426 225                      230                      235                      240
1427 Ile Asp Gly Ala Ala Gly Gln Gln Leu Pro His Lys Thr Pro Pro Arg
1428                      345                      250                      255
1429 Ile Pro Pro Lys Pro Lys Ser Arg Ser Pro Thr Pro Pro Ser Ile Ala
1430                      260                      265                      270
1431 Ala Lys Ala Gln Leu Ala Arg Gln Gln Ser Pro Ser Pro Ile Arg His
1432                      275                      280                      285
1433 Ser Pro Ser Pro Val Arg His Val Arg Ala Pro Thr Pro Ser Pro Val
1434                      290                      295                      300
1435 Arg Ser Val Ser Pro Ala Ala Arg Ile Ser Thr Ser Pro Ile Arg Ser
1436 305                      310                      315                      320
1437 Val Arg Ser Pro Leu Leu Met Arg Lys Thr Gln Ala Ser Thr Val Ala
1438                      325                      330                      335
1439 Thr Gly Pro Glu Val Pro Pro Pro Trp Lys Gln Glu Gly Tyr Val Ala
1440                      340                      345                      350
1441 Ser Ser Ser Glu Ala Glu Met Arg Glu Thr Thr Leu Thr Thr Ser Thr
1442                      355                      360                      365
1443 Gln Ile Arg Thr Glu Glu Arg Trp Glu Gly Arg Tyr Gly Val Gln Glu
1444                      370                      375                      380
1445 Gln Val Thr Ile Ser Gly Ala Ala Gly Ala Ala Ala Ser Val Ser Ala
1446 385                      390                      395                      400
1447 Ser Ala Ser Tyr Ala Ala Glu Ala Val Ala Thr Gly Ala Lys Glu Val
1448                      405                      410                      415
1449 Lys Gln Asp Ala Asp Lys Ser Ala Ala Val Ala Thr Val Val Ala Ala
1450                      420                      425                      430
1451 Val Asp Met Ala Arg Val Arg Glu Pro Val Ile Ser Ala Val Glu Gln
1452                      435                      440                      445
1453 Thr Ala Gln Arg Thr Thr Thr Thr Ala Val His Ile Gln Pro Ala Gln
1454                      450                      455                      460
1455 Glu Gln Val Arg Lys Glu Ala Glu Lys Thr Ala Val Thr Lys Val Val
1456 465                      470                      475                      480
1457 Val Ala Ala Asp Lys Ala Lys Glu Gln Glu Leu Lys Ser Arg Thr Lys
1458                      485                      490                      495
1459 Glu Ile Ile Thr Thr Lys Gln Glu Gln Met His Val Thr His Glu Gln
1460                      500                      505                      510
1461 Ile Arg Lys Glu Thr Glu Lys Thr Phe Val Pro Lys Val Val Ile Ser
1462                      515                      520                      525
1463 Ala Ala Lys Ala Lys Glu Gln Glu Thr Arg Ile Ser Glu Glu Ile Thr
1464                      530                      535                      540
1465 Lys Lys Gln Lys Gln Val Thr Gln Glu Ala Ile Met Lys Glu Thr Arg
1466 545                      550                      555                      560
1467 Lys Thr Val Val Pro Lys Val Ile Val Ala Thr Pro Lys Val Lys Glu
1468                      565                      570                      575
1469 Gln Asp Leu Val Ser Arg Gly Arg Glu Gly Ile Thr Thr Lys Arg Glu
1470                      580                      585                      590
1471 Gln Val Glu Ile Thr Gln Glu Lys Met Arg Lys Glu Ala Glu Lys Thr
1472                      595                      600                      605
1473 Ala Leu Ser Thr Ile Ala Val Ala Thr Ala Lys Ala Lys Glu Gln Glu

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Input Set : A:\00786.381002.SEQLIST.TXT  
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1474      610      615      620
1475 Thr Ile Leu Arg Thr Arg Glu Thr Met Ala Thr Arg Gln Glu Gln Ile
1476 625      630      635      640
1477 Gln Val Thr His Gly Lys Val Asp Val Gly Lys Lys Ala Glu Ala Val
1478      645      650      655
1479 Ala Thr Val Val Ala Ala Val Asp Gln Ala Arg Val Arg Glu Pro Arg
1480      660      665      670
1481 Glu Pro Gly His Leu Glu Glu Ser Tyr Ala Gln Gln Thr Thr Leu Glu
1482      675      680      685
1483 Tyr Gly Tyr Lys Glu Arg Ile Ser Ala Ala Lys Val Ala Glu Pro Pro
1484      690      695      700
1485 Gln Arg Pro Ala Ser Glu Pro His Val Val Pro Lys Ala Val Lys Pro
1486 705      710      715      720
1487 Arg Val Ile Gln Ala Pro Ser Glu Thr His Ile Lys Thr Thr Asp Gln
1488      725      730      735
1489 Lys Gly Met His Ile Ser Ser Gln Ile Lys Lys Thr Thr Asp Leu Thr
1490      740      745      750
1491 Thr Glu Arg Leu Val His Val Asp Lys Arg Pro Arg Thr Ala Ser Pro
1492      755      760      765
1493 His Phe Thr Val Ser Lys Ile Ser Val Pro Lys Thr Glu His Gly Tyr
1494      770      775      780
1495 Glu Ala Ser Ile Ala Gly Ser Ala Ile Ala Thr Leu Gln Lys Glu Leu
1496 785      790      795      800
1497 Ser Ala Thr Ser Ser Ala Gln Lys Ile Thr Lys Ser Val Lys Ala Pro
1498      805      810      815
1499 Thr Val Lys Pro Ser Glu Thr Arg Val Arg Ala Glu Pro Thr Pro Leu
1500      820      825      830
1501 Pro Gln Phe Pro Phe Ala Asp Thr Pro Asp Thr Tyr Lys Ser Glu Ala
1502      835      840      845
1503 Gly Val Glu Val Lys Lys Glu Val Gly Val Ser Ile Thr Gly Thr Thr
1504      850      855      860
1505 Val Arg Glu Glu Arg Phe Glu Val Leu His Gly Arg Glu Ala Lys Val
1506 865      870      875      880
1507 Thr Glu Thr Ala Arg Val Pro Ala Pro Val Glu Ile Pro Val Thr Pro
1508      885      890      895
1509 Pro Thr Leu Val Ser Gly Leu Lys Asn Val Thr Val Ile Glu Gly Glu
1510      900      905      910
1511 Ser Val Thr Leu Glu Cys His Ile Ser Gly Tyr Pro Ser Pro Thr Val
1512      915      920      925
1513 Thr Trp Tyr Arg Glu Asp Tyr Gln Ile Glu Ser Ser Ile Asp Phe Gln
1514      930      935      940
1515 Ile Thr Phe Gln Ser Gly Ile Ala Arg Leu Met Ile Arg Glu Ala Phe
1516 945      950      955      960
1517 Ala Glu Asp Ser Gly Arg Phe Thr Cys Ser Ala Val Asn Glu Ala Gly
1518      965      970      975
1519 Thr Val Ser Thr Ser Cys Tyr Leu Ala Val Gln Val Ser Glu Glu Phe
1520      980      985      990
1521 Glu Lys Glu Thr Thr Ala Val Thr Glu Lys Phe Thr Thr Glu Glu Lys
1522      995      1000      1005

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1523 Arg Phe Val Glu Ser Arg Asp Val Val Met Thr Asp Thr Ser Leu Thr
1524      1010      1015      1020
1525 Glu Glu Gln Ala Gly Pro Gly Glu Pro Ala Ala Pro Tyr Phe Ile Thr
1526 1025      1030      1035      1040
1527 Lys Pro Val Val Gln Lys Leu Val Glu Gly Gly Ser Val Val Phe Gly
1528      1045      1050      1055
1529 Cys Glu Val Gly Gly Asn Pro Lys Pro His Val Tyr Trp Lys Lys Ser
1530      1060      1065      1070
1531 Gly Val Pro Leu Thr Thr Gly Tyr Arg Tyr Lys Val Ser Tyr Asn Lys
1532      1075      1080      1085
1533 Gln Thr Gly Glu Cys Lys Leu Val Ile Ser Met Thr Phe Ala Asp Asp
1534      1090      1095      1100
1535 Ala Gly Glu Tyr Thr Ile Val Val Arg Asn Lys His Gly Glu Thr Ser
1536 1105      1110      1115      1120
1537 Ala Ser Ala Ser Leu Leu Glu Glu Ala Asp Tyr Glu Leu Leu Met Lys
1538      1125      1130      1135
1539 Ser Gln Gln Glu Met Leu Tyr Gln Thr Gln Val Thr Ala Phe Val Gln
1540      1140      1145      1150
1541 Glu Pro Glu Val Gly Glu Thr Ala Pro Gly Phe Val Tyr Ser Glu Tyr
1542      1155      1160      1165
1543 Glu Lys Glu Tyr Glu Lys Glu Gln Ala Leu Ile Arg Lys Lys Met Ala
1544      1170      1175      1180
1545 Lys Asp Thr Val Val Val Arg Thr Tyr Val Glu Asp Gln Glu Phe His
1546 1185      1190      1195      1200
1547 Ile Ser Ser Phe Glu Glu Arg Leu Ile Lys Glu Ile Glu Tyr Arg Ile
1548      1205      1210      1215
1549 Ile Lys Thr Thr Leu Glu Glu Leu Leu Glu Glu Asp Gly Glu Glu Lys
1550      1220      1225      1230
1551 Met Ala Val Asp Ile Ser Glu Ser Glu Ala Val Glu Ser Gly Phe Asp
1552      1235      1240      1245
1553 Leu Arg Ile Lys Asn Tyr Arg Ile Leu Glu Gly Met Gly Val Thr Phe
1554      1250      1255      1260
1555 His Cys Lys Met Ser Gly Tyr Pro Leu Pro Lys Ile Ala Trp Tyr Lys
1556 1265      1270      1275      1280
1557 Asp Gly Lys Arg Ile Lys His Gly Glu Arg Tyr Gln Met Asp Phe Leu
1558      1285      1290      1295
1559 Gln Asp Gly Arg Ala Ser Leu Arg Ile Pro Val Val Leu Pro Glu Asp
1560      1300      1305      1310
1561 Glu Gly Ile Tyr Thr Ala Phe Ala Ser Asn Ile Lys Gly Asn Ala Ile
1562      1315      1320      1325
1563 Cys Ser Gly Lys Leu Tyr Val Glu Pro Ala Ala Pro Leu Gly Ala Pro
1564      1330      1335      1340
1565 Thr Tyr Ile Pro Thr Leu Glu Pro Val Ser Arg Ile Arg Ser Leu Ser
1566 1345      1350      1355      1360
1567 Pro Arg Ser Val Ser Arg Ser Pro Ile Arg Met Ser Pro Ala Arg Met
1568      1365      1370      1375
1569 Ser Pro Ala Arg Met Ser Pro Ala Arg Met Ser Pro Ala Arg Met Ser
1570      1380      1385      1390
1571 Pro Gly Arg Arg Leu Glu Glu Thr Asp Glu Ser Gln Leu Glu Arg Leu

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1572      1395      1400      1405
1573 Tyr Lys Pro Val Phe Val Leu Lys Pro Val Ser Phe Lys Cys Leu Glu
1574      1410      1415      1420
1575 Gly Gln Thr Ala Arg Phe Asp Leu Lys Val Val Gly Arg Pro Met Pro
1576 1425      1430      1435      1440
1577 Glu Thr Phe Trp Phe His Asp Gly Gln Gln Ile Val Asn Asp Tyr Thr
1578      1445      1450      1455
1579 His Lys Val Val Ile Lys Glu Asp Gly Thr Gln Ser Leu Ile Ile Val
1580      1460      1465      1470
1581 Pro Ala Thr Pro Ser Asp Ser Gly Glu Trp Thr Val Val Ala Gln Asn
1582      1475      1480      1485
1583 Arg Ala Gly Arg Ser Ser Ile Ser Val Ile Leu Thr Val Glu Ala Val
1584      1490      1495      1500
1585 Glu His Gln Val Lys Pro Met Phe Val Glu Lys Leu Lys Asn Val Asn
1586 1505      1510      1515      1520
1587 Ile Lys Glu Gly Ser Arg Leu Glu Met Lys Val Arg Ala Thr Gly Asn
1588      1525      1530      1535
1589 Pro Asn Pro Asp Ile Val Trp Leu Lys Asn Ser Asp Ile Ile Val Pro
1590      1540      1545      1550
1591 His Lys Tyr Trp Pro Lys Ile Arg Ile Glu Gly Thr Lys Gly Glu Ala Ala
1592      1555      1560      1565
1593 Leu Lys Ile Asp Ser Thr Val Ser Gln Asp Ser Ala Trp Tyr Thr Ala
1594      1570      1575      1580
1595 Thr Ala Ile Asn Lys Ala Gly Arg Asp Thr Thr Arg Cys Lys Val Asn
1596 1585      1590      1595      1600
1597 Val Glu Val Glu Phe Ala Glu Pro Glu Pro Glu Arg Lys Leu Ile Ile
1598      1605      1610      1615
1599 Pro Arg Gly Thr Tyr Arg Ala Lys Glu Ile Ala Ala Pro Glu Leu Glu
1600      1620      1625      1630
1601 Pro Leu His Leu Arg Tyr Gly Gln Glu Gln Trp Glu Glu Gly Asp Leu
1602      1635      1640      1645
1603 Tyr Asp Lys Glu Lys Gln Gln Lys Pro Phe Phe Lys Lys Lys Leu Thr
1604      1650      1655      1660
1605 Ser Leu Arg Leu Lys Arg Phe Gly Pro Ala His Phe Glu Cys Arg Leu
1606 1665      1670      1675      1680
1607 Thr Pro Ile Ser Asp Pro Thr Met Val Val Glu Trp Leu His Asp Gly
1608      1685      1690      1695
1609 Lys Pro Leu Glu Ala Ala Asn Arg Leu Arg Met Ile Asn Glu Phe Gly
1610      1700      1705      1710
1611 Tyr Cys Ser Leu Asp Tyr Gly Val Ala Tyr Ser Arg Asp Ser Gly Ile
1612      1715      1720      1725
1613 Ile Thr Cys Arg Ala Thr Asn Lys Tyr Gly Thr Asp His Thr Ser Ala
1614      1730      1735      1740
1615 Thr Leu Ile Val Lys Asp Glu Lys Ser Leu Val Glu Glu Ser Gln Leu
1616 1745      1750      1755      1760
1617 Pro Glu Gly Arg Lys Gly Leu Gln Arg Ile Glu Glu Leu Glu Arg Met
1618      1765      1770      1775
1619 Ala His Glu Gly Ala Leu Thr Gly Val Thr Thr Asp Gln Lys Glu Lys
1620      1780      1785      1790

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1621 Gln Lys Pro Asp Ile Val Leu Tyr Pro Glu Pro Val Arg Val Leu Glu
1622      1795      1800      1805
1623 Gly Glu Thr Ala Arg Phe Arg Cys Arg Val Thr Gly Tyr Pro Gln Pro
1624      1810      1815      1820
1625 Lys Val Asn Trp Tyr Leu Asn Gly Gln Leu Ile Arg Lys Ser Lys Arg
1626 1825      1830      1835      1840
1627 Phe Arg Val Arg Tyr Asp Gly Ile His Tyr Leu Asp Ile Val Asp Cys
1628      1845      1850      1855
1629 Lys Ser Tyr Asp Thr Gly Glu Val Lys Val Thr Ala Glu Asn Pro Glu
1630      1860      1865      1870
1631 Gly Val Ile Glu His Lys Val Lys Leu Glu Ile Gln Gln Arg Glu Asp
1632      1875      1880      1885
1633 Phe Arg Ser Val Leu Arg Arg Ala Pro Glu Pro Arg Pro Glu Phe His
1634      1890      1895      1900
1635 Val His Glu Pro Gly Lys Leu Gln Phe Glu Val Gln Lys Val Asp Arg
1636 1905      1910      1915      1920
1637 Pro Val Asp Thr Thr Glu Thr Lys Glu Val Val Lys Leu Lys Arg Ala
1638      1925      1930      1935
1639 Glu Arg Ile Thr His Glu Lys Val Pro Glu Glu Ser Glu Glu Leu Arg
1640      1940      1945      1950
1641 Ser Lys Phe Lys Arg Arg Thr Glu Glu Gly Tyr Tyr Glu Ala Ile Thr
1642      1955      1960      1965
1643 Ala Val Glu Leu Lys Ser Arg Lys Lys Asp Glu Ser Tyr Glu Glu Leu
1644      1970      1975      1980
1645 Leu Arg Lys Thr Lys Asp Glu Leu Leu His Trp Thr Lys Glu Leu Thr
1646 1985      1990      1995      2000
1647 Glu Glu Glu Lys Lys Ala Leu Ala Glu Glu Gly Lys Ile Thr Ile Pro
1648      2005      2010      2015
1649 Thr Phe Lys Pro Asp Lys Ile Glu Leu Ser Pro Ser Met Glu Ala Pro
1650      2020      2025      2030
1651 Lys Ile Phe Glu Arg Ile Gln Ser Gln Thr Val Gly Gln Gly Ser Asp
1652      2035      2040      2045
1653 Ala His Phe Arg Val Arg Val Val Gly Lys Pro Asp Pro Glu Cys Glu
1654      2050      2055      2060
1655 Trp Tyr Lys Asn Gly Val Lys Ile Glu Arg Ser Asp Arg Ile Tyr Trp
1656 2065      2070      2075      2080
1657 Tyr Trp Pro Glu Asp Asn Val Cys Glu Leu Val Ile Arg Asp Val Thr
1658      2085      2090      2095
1659 Ala Glu Asp Ser Ala Ser Ile Met Val Lys Ala Ile Asn Ile Ala Gly
1660      2100      2105      2110
1661 Glu Thr Ser Ser His Ala Phe Leu Leu Val Gln Ala Lys Gln Leu Ile
1662      2115      2120      2125
1663 Thr Phe Thr Gln Glu Leu Gln Asp Val Val Ala Lys Glu Lys Asp Thr
1664      2130      2135      2140
1665 Met Ala Thr Phe Glu Cys Glu Thr Ser Glu Pro Phe Val Lys Val Lys
1666 2145      2150      2155      2160
1667 Trp Tyr Lys Asp Gly Met Glu Val His Glu Gly Asp Lys Tyr Arg Met
1668      2165      2170      2175
1669 His Ser Asp Arg Lys Val His Phe Leu Ser Ile Leu Thr Ile Asp Thr

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1670          2180          2185          2190
1671 Ser Asp Ala Glu Asp Tyr Ser Cys Val Leu Val Glu Asp Glu Asn Val
1672          2195          2200          2205
1673 Lys Thr Thr Ala Lys Leu Ile Val Glu Gly Ala Val Val Glu Phe Val
1674          2210          2215          2220
1675 Lys Glu Leu Gln Asp Ile Glu Val Pro Glu Ser Tyr Ser Gly Glu Leu
1676 2225          2230          2235          2240
1677 Glu Cys Ile Val Ser Pro Glu Asn Ile Glu Gly Lys Trp Tyr His Asn
1678          2245          2250          2255
1679 Asp Val Glu Leu Lys Ser Asn Gly Lys Tyr Thr Ile Thr Ser Arg Arg
1680          2260          2265          2270
1681 Gly Arg Gln Asn Leu Thr Val Lys Asp Val Thr Lys Glu Asp Gln Gly
1682          2275          2280          2285
1683 Glu Tyr Ser Phe Val Ile Asp Gly Lys Lys Thr Thr Cys Lys Leu Lys
1684          2290          2295          2300
1685 Met Lys Pro Arg Pro Ile Ala Ile Leu Gln Gly Leu Ser Asp Gln Lys
1686 2305          2310          2315          2320
1687 Val Cys Glu Gly Asp Ile Val Gln Leu Glu Val Lys Val Ser Leu Glu
1688          2325          2330          2335
1689 Ser Val Glu Gly Val Trp Met Lys Asp Gly Gln Glu Val Gln Pro Ser
1690          2340          2345          2350
1691 Asp Arg Val His Ile Val Ile Asp Lys Gln Ser His Met Leu Leu Ile
1692          2355          2360          2365
1693 Glu Asp Met Thr Lys Glu Asp Ala Gly Asn Tyr Ser Phe Thr Ile Pro
1694          2370          2375          2380
1695 Ala Leu Gly Leu Ser Thr Ser Gly Arg Val Ser Val Tyr Ser Val Asp
1696 2385          2390          2395          2400
1697 Val Ile Thr Pro Leu Lys Asp Val Asn Val Ile Glu Gly Thr Lys Ala
1698          2405          2410          2415
1699 Val Leu Glu Cys Lys Val Ser Val Pro Asp Val Thr Ser Val Lys Trp
1700          2420          2425          2430
1701 Tyr Leu Asn Asp Glu Gln Ile Lys Pro Asp Asp Arg Val Gln Ala Ile
1702          2435          2440          2445
1703 Val Lys Gly Thr Lys Gln Arg Leu Val Ile Asn Arg Thr His Ala Ser
1704          2450          2455          2460
1705 Asp Glu Gly Pro Tyr Lys Leu Ile Val Gly Arg Val Glu Thr Asn Cys
1706 2465          2470          2475          2480
1707 Asn Leu Ser Val Glu Lys Ile Lys Ile Ile Arg Gly Leu Arg Asp Leu
1708          2485          2490          2495
1709 Thr Cys Thr Glu Thr Gln Asn Val Val Phe Glu Val Glu Leu Ser His
1710          2500          2505          2510
1711 Ser Gly Ile Asp Val Leu Trp Asn Phe Lys Asp Lys Glu Ile Lys Pro
1712          2515          2520          2525
1713 Ser Ser Lys Tyr Lys Ile Glu Ala His Gly Lys Ile Tyr Lys Leu Thr
1714          2530          2535          2540
1715 Val Leu Asn Met Met Lys Asp Asp Glu Gly Lys Tyr Thr Phe Tyr Ala
1716 2545          2550          2555          2560
1717 Gly Glu Asn Met Thr Ser Gly Lys Leu Thr Val Ala Gly Gly Ala Ile
1718          2565          2570          2575

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1719 Ser Lys Pro Leu Thr Asp Gln Thr Val Ala Glu Ser Gln Glu Ala Val
1720                2580                2585                2590
1721 Phe Glu Cys Glu Val Ala Asn Pro Asp Ser Lys Gly Glu Trp Leu Arg
1722                2595                2600                2605
1723 Asp Gly Lys His Leu Pro Leu Thr Asn Asn Ile Arg Ser Glu Ser Asp
1724                2610                2615                2620
1725 Gly His Lys Arg Arg Leu Ile Ile Ala Ala Thr Lys Leu Asp Asp Ile
1726 2625                2630                2635                2640
1727 Gly Glu Tyr Thr Tyr Lys Val Ala Thr Ser Lys Thr Ser Ala Lys Leu
1728                2645                2650                2655
1729 Lys Val Glu Ala Val Lys Ile Lys Lys Thr Leu Lys Asn Leu Thr Val
1730                2660                2665                2670
1731 Thr Glu Thr Glu Asp Ala Val Phe Thr Val Glu Leu Thr His Pro Asn
1732                2675                2680                2685
1733 Val Lys Gly Val Gln Trp Ile Lys Asn Gly Val Val Leu Glu Ser Asn
1734                2690                2695                2700
1735 Glu Lys Tyr Ala Ile Ser Val Lys Gly Thr Ile Tyr Ser Leu Arg Ile
1736 2705                2710                2715                2720
1737 Lys Asn Cys Ala Ile Val Asp Glu Ser Val Tyr Gly Phe Arg Leu Gly
1738                2725                2730                2735
1739 Arg Leu Gly Ala Ser Ala Arg Leu His Val Glu Thr Val Lys Ile Ile
1740                2740                2745                2750
1741 Lys Lys Pro Lys Asp Val Thr Ala Leu Glu Asn Ala Thr Val Ala Phe
1742                2755                2760                2765
1743 Glu Val Ser Val Ser His Asp Thr Val Pro Val Lys Trp Phe His Lys
1744                2770                2775                2780
1745 Ser Val Glu Ile Lys Pro Ser Asp Lys His Arg Leu Val Ser Glu Arg
1746 2785                2790                2795                2800
1747 Lys Val His Lys Leu Met Leu Gln Asn Ile Ser Pro Ser Asp Ala Gly
1748                2805                2810                2815
1749 Glu Tyr Thr Ala Val Val Gly Gln Leu Glu Cys Lys Ala Lys Leu Phe
1750                2820                2825                2830
1751 Val Glu Thr Leu His Ile Thr Lys Thr Met Lys Asn Ile Glu Val Pro
1752                2835                2840                2845
1753 Glu Thr Lys Thr Ala Ser Phe Glu Cys Glu Val Ser His Phe Asn Val
1754                2850                2855                2860
1755 Pro Ser Met Trp Leu Lys Asn Gly Val Glu Ile Glu Met Ser Glu Lys
1756 2865                2870                2875                2880
1757 Phe Lys Ile Val Val Gln Gly Lys Leu His Gln Leu Ile Ile Met Asn
1758                2885                2890                2895
1759 Thr Ser Thr Glu Asp Ser Ala Glu Tyr Thr Phe Val Cys Gly Asn Asp
1760                2900                2905                2910
1761 Glu Val Ser Ala Thr Leu Thr Val Thr Pro Ile Met Ile Thr Ser Met
1762                2915                2920                2925
1763 Leu Lys Asp Ile Asn Ala Glu Glu Lys Asp Thr Ile Thr Phe Glu Val
1764                2930                2935                2940
1765 Thr Val Asn Tyr Glu Gly Ile Ser Tyr Lys Trp Leu Lys Asn Gly Val
1766 2945                2950                2955                2960
1767 Glu Ile Lys Ser Thr Asp Lys Cys Gln Met Arg Thr Lys Lys Leu Thr

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1768                               2965                               2970                               2975
1769 His Ser Leu Asn Ile Arg Asn Val His Phe Gly Asp Ala Ala Asp Tyr
1770                               2980                               2985                               2990
1771 Thr Phe Val Ala Gly Lys Ala Thr Ser Thr Ala Thr Leu Tyr Val Glu
1772                               2995                               3000                               3005
1773 Ala Arg His Ile Glu Phe Arg Lys His Ile Lys Asp Ile Lys Val Leu
1774                               3010                               3015                               3020
1775 Glu Lys Lys Arg Ala Met Phe Glu Cys Glu Val Ser Glu Pro Asp Ile
1776 3025                               3030                               3035                               3040
1777 Thr Val Gln Trp Met Lys Asp Asp Glu Glu Leu Gln Ile Thr Asp Arg
1778                               3045                               3050                               3055
1779 Ile Lys Ile Gln Lys Glu Lys Tyr Val His Arg Leu Leu Ile Pro Ser
1780                               3060                               3065                               3070
1781 Thr Arg Met Ser Asp Ala Gly Lys Tyr Thr Val Val Ala Gly Gly Asn
1782                               3075                               3080                               3085
1783 Val Ser Thr Ala Lys Leu Phe Val Glu Gly Arg Asp Val Arg Ile Arg
1784                               3090                               3095                               3100
1785 Ser Ile Lys Lys Glu Val Gln Val Ile Glu Lys Gln Arg Ala Val Val
1786 3105                               3110                               3115                               3120
1787 Glu Phe Glu Val Asn Glu Asp Asp Val Asp Ala His Trp Tyr Lys Asp
1788                               3125                               3130                               3135
1789 Gly Ile Glu Ile Asn Phe Gln Val Gln Glu Arg His Lys Tyr Val Val
1790                               3140                               3145                               3150
1791 Glu Arg Arg Ile His Arg Met Phe Ile Ser Glu Thr Arg Gln Ser Asp
1792                               3155                               3160                               3165
1793 Ala Gly Glu Tyr Thr Phe Val Ala Gly Arg Asn Arg Ser Ser Val Thr
1794                               3170                               3175                               3180
1795 Leu Tyr Val Asn Ala Pro Glu Pro Pro Gln Val Leu Gln Glu Leu Gln
1796 3185                               3190                               3195                               3200
1797 Pro Val Thr Val Gln Ser Gly Lys Pro Ala Arg Phe Cys Ala Met Ile
1798                               3205                               3210                               3215
1799 Ser Gly Arg Pro Gln Pro Lys Ile Ser Trp Tyr Lys Glu Glu Gln Leu
1800                               3220                               3225                               3230
1801 Leu Ser Thr Gly Phe Lys Cys Lys Phe Leu His Asp Gly Gln Glu Tyr
1802                               3235                               3240                               3245
1803 Thr Leu Leu Leu Ile Glu Ala Phe Pro Glu Asp Ala Ala Val Tyr Thr
1804                               3250                               3255                               3260
1805 Cys Glu Ala Lys Asn Asp Tyr Gly Val Ala Thr Thr Ser Ala Ser Leu
1806 3265                               3270                               3275                               3280
1807 Ser Val Glu Val Pro Glu Val Val Ser Pro Asp Gln Glu Met Pro Val
1808                               3285                               3290                               3295
1809 Tyr Pro Pro Ala Ile Ile Thr Pro Leu Gln Asp Thr Val Thr Ser Glu
1810                               3300                               3305                               3310
1811 Gly Gln Pro Ala Arg Phe Gln Cys Arg Val Ser Gly Thr Asp Leu Lys
1812                               3315                               3320                               3325
1813 Val Ser Trp Tyr Ser Lys Asp Lys Lys Ile Lys Pro Ser Arg Phe Phe
1814                               3330                               3335                               3340
1815 Arg Met Thr Gln Phe Glu Asp Thr Tyr Gln Leu Glu Ile Ala Glu Ala
1816 3345                               3350                               3355                               3360

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1817 Tyr Pro Glu Asp Glu Gly Thr Tyr Thr Phe Val Ala Asn Asn Ala Val
1818                               3365           3370           3375
1819 Gly Gln Val Ser Ser Thr Ala Asn Leu Ser Leu Glu Ala Pro Glu Ser
1820                               3380           3385           3390
1821 Ile Leu His Glu Arg Ile Glu Gln Glu Ile Glu Met Glu Met Lys Glu
1822                               3395           3400           3405
1823 Phe Ser Ser Ser Phe Leu Ser Ala Glu Glu Glu Gly Leu His Ser Ala
1824                               3410           3415           3420
1825 Glu Leu Gln Leu Ser Lys Ile Asn Glu Thr Leu Glu Leu Leu Ser Glu
1826 3425           3430           3435           3440
1827 Ser Pro Val Tyr Pro Thr Lys Phe Asp Ser Glu Lys Glu Gly Thr Gly
1828                               3445           3450           3455
1829 Pro Ile Phe Ile Lys Glu Val Ser Asn Ala Asp Ile Ser Met Gly Asp
1830                               3460           3465           3470
1831 Val Ala Thr Leu Ser Val Thr Val Ile Gly Ile Pro Lys Pro Lys Ile
1832                               3475           3480           3485
1833 Gln Trp Phe Phe Asn Gly Val Leu Leu Thr Pro Ser Ala Asp Tyr Lys
1834                               3490           3495           3500
1835 Phe Val Phe Asp Gly Asp Asp His Ser Leu Ile Ile Leu Phe Thr Lys
1836 3505           3510           3515           3520
1837 Leu Glu Asp Glu Gly Glu Tyr Thr Cys Met Ala Ser Asn Asp Tyr Gly
1838                               3525           3530           3535
1839 Lys Thr Ile Cys Ser Ala Tyr Leu Lys Ile Asn Ser Lys Gly Glu Gly
1840                               3540           3545           3550
1841 His Lys Asp Thr Glu Thr Glu Ser Ala Val Ala Lys Ser Leu Glu Lys
1842                               3555           3560           3565
1843 Leu Gly Gly Pro Cys Pro Pro His Phe Leu Lys Glu Leu Lys Pro Ile
1844                               3570           3575           3580
1845 Arg Cys Ala Gln Gly Leu Pro Ala Ile Phe Glu Tyr Thr Val Val Gly
1846 3585           3590           3595           3600
1847 Glu Pro Ala Pro Thr Val Thr Trp Phe Lys Glu Asn Lys Gln Leu Cys
1848                               3605           3610           3615
1849 Thr Ser Val Tyr Tyr Thr Ile Ile His Asn Pro Asn Gly Ser Gly Thr
1850                               3620           3625           3630
1851 Phe Ile Val Asn Asp Pro Gln Arg Glu Asp Ser Gly Leu Tyr Ile Cys
1852                               3635           3640           3645
1853 Lys Ala Glu Asn Met Leu Gly Glu Ser Thr Cys Ala Ala Glu Leu Leu
1854                               3650           3655           3660
1855 Val Leu Leu Glu Asp Thr Asp Met Thr Asp Thr Pro Cys Lys Ala Lys
1856 3665           3670           3675           3680
1857 Ser Thr Pro Glu Ala Pro Glu Asp Phe Pro Gln Thr Pro Leu Lys Gly
1858                               3685           3690           3695
1859 Pro Ala Val Glu Ala Leu Asp Ser Glu Gln Glu Ile Ala Thr Phe Val
1860                               3700           3705           3710
1861 Lys Asp Thr Ile Leu Lys Ala Ala Leu Ile Thr Glu Glu Asn Gln Gln
1862                               3715           3720           3725
1863 Leu Ser Tyr Glu His Ile Ala Lys Ala Asn Glu Leu Ser Ser Gln Leu
1864                               3730           3735           3740
1865 Pro Leu Gly Ala Gln Glu Leu Gln Ser Ile Leu Glu Gln Asp Lys Leu

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1866 3745                      3750                      3755                      3760
1867 Thr Pro Glu Ser Thr Arg Glu Phe Leu Cys Ile Asn Gly Ser Ile His
1868                      3765                      3770                      3775
1869 Phe Gln Pro Leu Lys Glu Pro Ser Pro Asn Leu Gln Leu Gln Ile Val
1870                      3780                      3785                      3790
1871 Gln Ser Gln Lys Thr Phe Ser Lys Glu Gly Ile Leu Met Pro Glu Glu
1872                      3795                      3800                      3805
1873 Pro Glu Thr Gln Ala Val Leu Ser Asp Thr Glu Lys Ile Phe Pro Ser
1874                      3810                      3815                      3820
1875 Ala Met Ser Ile Glu Gln Ile Asn Ser Leu Thr Val Glu Pro Leu Lys
1876 3825                      3830                      3835                      3840
1877 Thr Leu Leu Ala Glu Pro Glu Gly Asn Tyr Pro Gln Ser Ser Ile Glu
1878                      3845                      3850                      3855
1879 Pro Pro Met His Ser Tyr Leu Thr Ser Val Ala Glu Glu Val Leu Ser
1880                      3860                      3865                      3870
1881 Leu Lys Glu Lys Thr Val Ser Asp Thr Asn Arg Glu Gln Arg Val Thr
1882                      3875                      3880                      3885
1883 Leu Gln Lys Gln Glu Ala Gln Ser Ala Leu Ile Leu Ser Gln Ser Leu
1884                      3890                      3895                      3900
1885 Ala Glu Gly His Val Glu Ser Leu Gln Ser Pro Asp Val Met Ile Ser
1886 3905                      3910                      3915                      3920
1887 Gln Val Asn Tyr Glu Pro Leu Val Pro Ser Glu His Ser Cys Thr Glu
1888                      3925                      3930                      3935
1889 Gly Gly Lys Ile Leu Ile Glu Ser Ala Asn Pro Leu Glu Asn Ala Gly
1890                      3940                      3945                      3950
1891 Gln Asp Ser Ala Val Arg Ile Glu Glu Gly Lys Ser Leu Arg Phe Pro
1892                      3955                      3960                      3965
1893 Leu Ala Leu Glu Glu Lys Gln Val Leu Leu Lys Glu Glu His Ser Asp
1894                      3970                      3975                      3980
1895 Asn Val Val Met Pro Pro Asp Gln Ile Ile Glu Ser Lys Arg Glu Pro
1896 3985                      3990                      3995                      4000
1897 Val Ala Ile Lys Lys Val Gln Glu Val Gln Gly Arg Asp Leu Leu Ser
1898                      4005                      4010                      4015
1899 Lys Glu Ser Leu Leu Ser Gly Ile Pro Glu Glu Gln Arg Leu Asn Leu
1900                      4020                      4025                      4030
1901 Lys Ile Gln Ile Cys Arg Ala Leu Gln Ala Ala Val Ala Ser Glu Gln
1902                      4035                      4040                      4045
1903 Pro Gly Leu Phe Ser Gln Trp Leu Arg Asn Ile Glu Lys Val Glu Val
1904                      4050                      4055                      4060
1905 Glu Ala Val Asn Ile Thr Gln Glu Pro Arg His Ile Met Cys Met Tyr
1906 4065                      4070                      4075                      4080
1907 Leu Val Thr Ser Ala Lys Ser Val Thr Glu Glu Val Thr Ile Ile Ile
1908                      4085                      4090                      4095
1909 Glu Asp Val Asp Pro Gln Met Ala Asn Leu Lys Met Glu Leu Arg Asp
1910                      4100                      4105                      4110
1911 Ala Leu Cys Ala Ile Ile Tyr Glu Glu Ile Asp Ile Leu Thr Ala Glu
1912                      4115                      4120                      4125
1913 Gly Pro Arg Ile Gln Gln Gly Ala Lys Thr Ser Leu Gln Glu Glu Met
1914                      4130                      4135                      4140

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1915 Asp Ser Phe Ser Gly Ser Gln Lys Val Glu Pro Ile Thr Glu Pro Glu
1916 4145                      4150                      4155                      4160
1917 Val Glu Ser Lys Tyr Leu Ile Ser Thr Glu Glu Val Ser Tyr Phe Asn
1918                      4165                      4170                      4175
1919 Val Gln Ser Arg Val Lys Tyr Leu Asp Ala Thr Pro Val Thr Lys Gly
1920                      4180                      4185                      4190
1921 Val Ala Ser Ala Val Val Ser Asp Glu Lys Gln Asp Glu Ser Leu Lys
1922                      4195                      4200                      4205
1923 Pro Ser Glu Glu Lys Glu Glu Ser Ser Ser Glu Ser Gly Thr Glu Glu
1924                      4210                      4215                      4220
1925 Val Ala Thr Val Lys Ile Gln Glu Ala Glu Gly Gly Leu Ile Lys Glu
1926 4225                      4230                      4235                      4240
1927 Asp Gly Pro Met Ile His Thr Pro Leu Val Asp Thr Val Ser Glu Glu
1928                      4245                      4250                      4255
1929 Gly Asp Ile Val His Leu Thr Thr Ser Ile Thr Asn Ala Lys Glu Val
1930                      4260                      4265                      4270
1931 Asn Trp Tyr Phe Glu Asn Lys Leu Val Pro Ser Asp Glu Lys Phe Lys
1932                      4275                      4280                      4285
1933 Cys Leu Gln Asp Gln Asn Thr Tyr Thr Leu Val Ile Asp Lys Val Asn
1934                      4290                      4295                      4300
1935 Thr Glu Asp His Gln Gly Glu Tyr Val Cys Glu Ala Leu Asn Asp Ser
1936 4305                      4310                      4315                      4320
1937 Gly Lys Thr Ala Thr Ser Ala Lys Leu Thr Val Val Lys Arg Ala Ala
1938                      4325                      4330                      4335
1939 Pro Val Ile Lys Arg Lys Ile Glu Pro Leu Glu Val Ala Leu Gly His
1940                      4340                      4345                      4350
1941 Leu Ala Lys Phe Thr Cys Glu Ile Gln Ser Ala Pro Asn Val Arg Phe
1942                      4355                      4360                      4365
1943 Gln Trp Phe Lys Ala Gly Arg Glu Ile Tyr Glu Ser Asp Lys Cys Ser
1944                      4370                      4375                      4380
1945 Ile Arg Ser Ser Lys Tyr Ile Ser Ser Leu Glu Ile Leu Arg Thr Gln
1946 4385                      4390                      4395                      4400
1947 Val Val Asp Cys Gly Glu Tyr Thr Cys Lys Ala Ser Asn Glu Tyr Gly
1948                      4405                      4410                      4415
1949 Ser Val Ser Cys Thr Ala Thr Leu Thr Val Thr Val Pro Gly Gly Glu
1950                      4420                      4425                      4430
1951 Lys Lys Val Arg Lys Leu Leu Pro Glu Arg Lys Pro Glu Pro Lys Glu
1952                      4435                      4440                      4445
1953 Glu Val Val Leu Lys Ser Val Leu Arg Lys Arg Pro Glu Glu Glu Glu
1954                      4450                      4455                      4460
1955 Pro Lys Val Glu Pro Lys Lys Leu Glu Lys Val Lys Lys Pro Ala Val
1956 4465                      4470                      4475                      4480
1957 Pro Glu Pro Pro Pro Pro Lys Pro Val Glu Glu Val Glu Val Pro Thr
1958                      4485                      4490                      4495
1959 Val Thr Lys Arg Glu Arg Lys Ile Pro Glu Pro Thr Lys Val Pro Glu
1960                      4500                      4505                      4510
1961 Ile Lys Pro Ala Ile Pro Leu Pro Ala Pro Glu Pro Lys Pro Lys Pro
1962                      4515                      4520                      4525
1963 Glu Ala Glu Val Lys Thr Ile Lys Pro Pro Pro Val Glu Pro Glu Pro

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1964      4530      4535      4540
1965 Thr Pro Ile Ala Ala Pro Val Thr Val Pro Val Val Gly Lys Lys Ala
1966 4545      4550      4555      4560
1967 Glu Ala Lys Ala Pro Lys Glu Glu Ala Ala Lys Pro Lys Gly Pro Ile
1968      4565      4570      4575
1969 Lys Gly Val Pro Lys Lys Thr Pro Ser Pro Ile Glu Ala Glu Arg Arg
1970      4580      4585      4590
1971 Lys Leu Arg Pro Gly Ser Gly Gly Glu Lys Pro Pro Asp Glu Ala Pro
1972      4595      4600      4605
1973 Phe Thr Tyr Gln Leu Lys Ala Val Pro Leu Lys Phe Val Lys Glu Ile
1974      4610      4615      4620
1975 Lys Asp Ile Ile Leu Thr Glu Ser Glu Phe Val Gly Ser Ser Ala Ile
1976 4625      4630      4635      4640
1977 Phe Glu Cys Leu Val Ser Pro Ser Thr Ala Ile Thr Thr Trp Met Lys
1978      4645      4650      4655
1979 Asp Gly Ser Asn Ile Arg Glu Ser Pro Lys His Arg Phe Ile Ala Asp
1980      4660      4665      4670
1981 Gly Lys Asp Arg Lys Leu His Ile Ile Asp Val Gln Leu Ser Asp Ala
1982      4675      4680      4685
1983 Gly Glu Tyr Thr Cys Val Leu Arg Leu Gly Asn Lys Glu Lys Thr Ser
1984      4690      4695      4700
1985 Thr Ala Lys Leu Val Val Glu Glu Leu Pro Val Arg Phe Val Lys Thr
1986 4705      4710      4715      4720
1987 Leu Glu Glu Glu Val Thr Val Val Lys Gly Gln Pro Leu Tyr Leu Ser
1988      4725      4730      4735
1989 Cys Glu Leu Asn Lys Glu Arg Asp Val Val Trp Arg Lys Asp Gly Lys
1990      4740      4745      4750
1991 Ile Val Val Glu Lys Pro Gly Arg Ile Val Pro Gly Val Ile Gly Leu
1992      4755      4760      4765
1993 Met Arg Ala Leu Thr Ile Asn Asp Ala Asp Asp Thr Asp Ala Gly Thr
1994      4770      4775      4780
1995 Tyr Thr Val Thr Val Glu Asn Ala Asn Asn Leu Glu Cys Ser Ser Cys
1996 4785      4790      4795      4800
1997 Val Lys Val Val Glu Val Ile Arg Asp Trp Leu Val Lys Pro Ile Arg
1998      4805      4810      4815
1999 Asp Gln His Val Lys Pro Lys Gly Thr Ala Ile Phe Ala Cys Asp Ile
2000      4820      4825      4830
2001 Ala Lys Asp Thr Pro Asn Ile Lys Trp Phe Lys Gly Tyr Asp Glu Ile
2002      4835      4840      4845
2003 Pro Ala Glu Pro Asn Asp Lys Thr Glu Ile Leu Arg Asp Gly Asn His
2004      4850      4855      4860
2005 Leu Tyr Leu Lys Ile Lys Asn Ala Met Pro Glu Asp Ile Ala Glu Tyr
2006 4865      4870      4875      4880
2007 Ala Val Glu Ile Glu Gly Lys Arg Tyr Pro Ala Lys Leu Thr Leu Gly
2008      4885      4890      4895
2009 Glu Arg Glu Val Glu Leu Leu Lys Pro Ile Glu Asp Val Thr Ile Tyr
2010      4900      4905      4910
2011 Glu Lys Glu Ser Ala Ser Phe Asp Ala Glu Ile Ser Glu Ala Asp Ile
2012      4915      4920      4925

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2013 Pro Gly Gln Trp Lys Leu Lys Gly Glu Leu Leu Arg Pro Ser Pro Thr
2014      4930      4935      4940
2015 Cys Glu Ile Lys Ala Glu Gly Gly Lys Arg Phe Leu Thr Leu His Lys
2016 4945      4950      4955      4960
2017 Val Lys Leu Asp Gln Ala Gly Glu Val Leu Tyr Gln Ala Leu Asn Ala
2018      4965      4970      4975
2019 Ile Thr Thr Ala Ile Leu Thr Val Lys Glu Ile Glu Leu Asp Phe Ala
2020      4980      4985      4990
2021 Val Pro Leu Lys Asp Val Thr Val Pro Glu Arg Arg Gln Ala Arg Phe
2022      4995      5000      5005
2023 Glu Cys Val Leu Thr Arg Glu Ala Asn Val Ile Trp Ser Lys Gly Pro
2024      5010      5015      5020
2025 Asp Ile Ile Lys Ser Ser Asp Lys Phe Asp Ile Ile Ala Asp Gly Lys
2026 5025      5030      5035      5040
2027 Lys His Ile Leu Val Ile Asn Asp Ser Gln Phe Asp Asp Glu Gly Val
2028      5045      5050      5055
2029 Tyr Thr Ala Glu Val Glu Gly Lys Lys Thr Ser Ala Arg Leu Phe Val
2030      5060      5065      5070
2031 Thr Gly Ile Arg Leu Lys Phe Met Ser Pro Leu Glu Asp Gln Thr Val
2032      5075      5080      5085
2033 Lys Glu Gly Glu Thr Ala Thr Phe Val Cys Glu Leu Ser His Glu Lys
2034      5090      5095      5100
2035 Met His Val Val Trp Phe Lys Asn Asp Ala Lys Leu His Thr Ser Arg
2036 5105      5110      5115      5120
2037 Thr Val Leu Ile Ser Ser Glu Gly Lys Thr His Lys Leu Glu Met Lys
2038      5125      5130      5135
2039 Glu Val Thr Leu Asp Asp Ile Ser Gln Ile Lys Ala Gln Val Lys Glu
2040      5140      5145      5150
2041 Leu Ser Ser Thr Ala Gln Leu Lys Val Leu Glu Ala Asp Pro Tyr Phe
2042      5155      5160      5165
2043 Thr Val Lys Leu His Asp Lys Thr Ala Val Glu Lys Asp Glu Ile Thr
2044      5170      5175      5180
2045 Leu Lys Cys Glu Val Ser Lys Asp Val Pro Val Lys Trp Phe Lys Asp
2046 5185      5190      5195      5200
2047 Gly Glu Glu Ile Val Pro Ser Pro Lys Tyr Ser Ile Lys Ala Asp Gly
2048      5205      5210      5215
2049 Leu Arg Arg Ile Leu Lys Ile Lys Lys Ala Asp Leu Lys Asp Lys Gly
2050      5220      5225      5230
2051 Glu Tyr Val Cys Asp Cys Gly Thr Asp Lys Thr Lys Ala Asn Val Thr
2052      5235      5240      5245
2053 Val Glu Ala Arg Leu Ile Glu Val Glu Lys Pro Leu Tyr Gly Val Glu
2054      5250      5255      5260
2055 Val Phe Val Gly Glu Thr Ala His Phe Glu Ile Glu Leu Ser Gln Pro
2056 5265      5270      5275      5280
2057 Asp Val His Gly Gln Trp Lys Leu Lys Gly Gln Pro Leu Thr Ala Ser
2058      5285      5290      5295
2059 Pro Asp Cys Glu Ile Ile Glu Asp Gly Lys Lys His Ile Leu Ile Leu
2060      5300      5305      5310
2061 His Asn Cys Gln Leu Gly Met Thr Gly Glu Val Ser Phe Gln Ala Ala

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2062          5315          5320          5325
2063 Asn Ala Lys Ser Ala Ala Asn Leu Lys Val Lys Glu Leu Pro Leu Ile
2064          5330          5335          5340
2065 Phe Ile Thr Pro Leu Ser Asp Val Lys Val Phe Glu Lys Asp Glu Ala
2066 5345          5350          5355          5360
2067 Lys Phe Glu Cys Glu Val Ser Arg Glu Pro Lys Thr Phe Arg Trp Leu
2068          5365          5370          5375
2069 Lys Gly Thr Gln Glu Ile Thr Gly Asp Asp Arg Phe Glu Leu Ile Lys
2070          5380          5385          5390
2071 Asp Gly Thr Lys His Ser Met Val Ile Lys Ser Ala Ala Phe Glu Asp
2072          5395          5400          5405
2073 Glu Ala Lys Tyr Met Phe Glu Ala Glu Asp Lys His Thr Ser Gly Lys
2074          5410          5415          5420
2075 Leu Ile Ile Glu Gly Ile Arg Leu Lys Phe Leu Thr Pro Leu Lys Asp
2076 5425          5430          5435          5440
2077 Val Thr Ala Lys Glu Lys Glu Ser Ala Val Phe Thr Val Glu Leu Ser
2078          5445          5450          5455
2079 His Asp Asn Ile Arg Val Lys Trp Phe Lys Asn Asp Gln Arg Leu His
2080          5460          5465          5470
2081 Thr Thr Arg Ser Val Ser Met Gln Asp Glu Gly Lys Thr His Ser Ile
2082          5475          5480          5485
2083 Thr Phe Lys Asp Leu Ser Ile Asp Asp Thr Ser Gln Ile Arg Val Glu
2084          5490          5495          5500
2085 Ala Met Gly Met Ser Ser Glu Ala Lys Leu Thr Val Leu Glu Gly Asp
2086 5505          5510          5515          5520
2087 Pro Tyr Phe Thr Gly Lys Leu Gln Asp Tyr Thr Gly Val Glu Lys Asp
2088          5525          5530          5535
2089 Glu Val Ile Leu Gln Cys Glu Ile Ser Lys Ala Asp Ala Pro Val Lys
2090          5540          5545          5550
2091 Trp Phe Lys Asp Gly Lys Glu Ile Lys Pro Ser Lys Asn Ala Val Ile
2092          5555          5560          5565
2093 Lys Thr Asp Gly Lys Lys Arg Met Leu Ile Leu Lys Lys Ala Leu Lys
2094          5570          5575          5580
2095 Ser Asp Ile Gly Gln Tyr Thr Cys Asp Cys Gly Thr Asp Lys Thr Ser
2096 5585          5590          5595          5600
2097 Gly Lys Leu Asp Ile Glu Asp Arg Glu Ile Lys Leu Val Arg Pro Leu
2098          5605          5610          5615
2099 His Ser Val Glu Val Met Glu Thr Glu Thr Ala Arg Phe Glu Thr Glu
2100          5620          5625          5630
2101 Ile Ser Glu Asp Asp Ile His Ala Asn Trp Lys Leu Lys Gly Glu Ala
2102          5635          5640          5645
2103 Leu Leu Gln Thr Pro Asp Cys Glu Ile Lys Glu Glu Gly Lys Ile His
2104          5650          5655          5660
2105 Ser Leu Val Leu His Asn Cys Arg Leu Asp Gln Thr Gly Gly Val Asp
2106 5665          5670          5675          5680
2107 Phe Gln Ala Ala Asn Val Lys Ser Ser Ala His Leu Arg Val Lys Pro
2108          5685          5690          5695
2109 Arg Val Ile Gly Leu Leu Arg Pro Leu Lys Asp Val Thr Val Thr Ala
2110          5700          5705          5710

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2111 Gly Glu Thr Ala Thr Phe Asp Cys Glu Leu Ser Tyr Glu Asp Ile Pro
2112          5715          5720          5725
2113 Val Glu Trp Tyr Leu Lys Gly Lys Lys Leu Glu Pro Ser Asp Lys Val
2114          5730          5735          5740
2115 Val Pro Arg Ser Glu Gly Lys Val His Thr Leu Thr Leu Arg Asp Val
2116 5745          5750          5755          5760
2117 Lys Leu Glu Asp Ala Gly Glu Val Gln Leu Thr Ala Lys Asp Phe Lys
2118          5765          5770          5775
2119 Thr His Ala Asn Leu Phe Val Lys Glu Pro Pro Val Glu Phe Thr Lys
2120          5780          5785          5790
2121 Pro Leu Glu Asp Gln Thr Val Glu Glu Gly Ala Thr Ala Val Leu Glu
2122          5795          5800          5805
2123 Cys Glu Val Ser Arg Glu Asn Ala Lys Val Lys Trp Phe Lys Asn Gly
2124          5810          5815          5820
2125 Thr Glu Ile Leu Lys Ser Lys Lys Tyr Glu Ile Val Ala Asp Gly Arg
2126 5825          5830          5835          5840
2127 Val Arg Lys Leu Val Ile His Asp Cys Thr Pro Glu Asp Ile Lys Thr
2128          5845          5850          5855
2129 Tyr Thr Cys Asp Ala Lys Asp Phe Lys Thr Ser Cys Asn Leu Asn Val
2130          5860          5865          5870
2131 Val Pro Pro His Val Glu Phe Leu Arg Pro Leu Thr Asp Leu Gln Val
2132          5875          5880          5885
2133 Arg Glu Lys Glu Met Ala Arg Phe Glu Cys Glu Leu Ser Arg Glu Asn
2134          5890          5895          5900
2135 Ala Lys Val Lys Trp Phe Lys Asp Gly Ala Glu Ile Lys Lys Gly Lys
2136 5905          5910          5915          5920
2137 Lys Tyr Asp Ile Ile Ser Lys Gly Ala Val Arg Ile Leu Val Ile Asn
2138          5925          5930          5935
2139 Lys Cys Leu Leu Asp Asp Glu Ala Glu Tyr Ser Cys Glu Val Arg Thr
2140          5940          5945          5950
2141 Ala Arg Thr Ser Gly Met Leu Thr Val Leu Glu Glu Ala Val Phe
2142          5955          5960          5965
2143 Thr Lys Asn Leu Ala Asn Ile Glu Val Ser Glu Thr Asp Thr Ile Lys
2144          5970          5975          5980
2145 Leu Val Cys Glu Val Ser Lys Pro Gly Ala Glu Val Ile Trp Tyr Lys
2146 5985          5990          5995          6000
2147 Gly Asp Glu Glu Ile Ile Glu Thr Gly Arg Tyr Glu Ile Leu Thr Glu
2148          6005          6010          6015
2149 Gly Arg Lys Arg Ile Leu Val Ile Gln Asn Ala His Leu Glu Asp Ala
2150          6020          6025          6030
2151 Gly Asn Tyr Asn Cys Arg Leu Pro Ser Ser Arg Thr Asp Gly Lys Val
2152          6035          6040          6045
2153 Lys Val His Glu Leu Ala Ala Glu Phe Ile Ser Lys Pro Gln Asn Leu
2154          6050          6055          6060
2155 Glu Ile Leu Glu Gly Glu Lys Ala Glu Phe Val Cys Ser Ile Ser Lys
2156 6065          6070          6075          6080
2157 Glu Ser Phe Pro Val Gln Trp Lys Arg Asp Asp Lys Thr Leu Glu Ser
2158          6085          6090          6095
2159 Gly Asp Lys Tyr Asp Val Ile Ala Asp Gly Lys Lys Arg Val Leu Val

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RAW SEQUENCE LISTING  
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Input Set : A:\00786.381002.SEQLIST.TXT  
 Output Set: N:\CRF3\01292001\I759508.raw

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2160          6100          6105          6110
2161 Val Lys Asp Ala Thr Leu Gln Asp Met Gly Thr Tyr Val Val Met Val
2162          6115          6120          6125
2163 Gly Ala Ala Arg Ala Ala Ala His Leu Thr Val Ile Glu Lys Leu Arg
2164          6130          6135          6140
2165 Ile Val Val Pro Leu Lys Asp Thr Arg Val Lys Glu Gln Gln Glu Val
2166 6145          6150          6155          6160
2167 Val Phe Asn Cys Glu Val Asn Thr Glu Gly Ala Lys Ala Lys Trp Phe
2168          6165          6170          6175
2169 Arg Asn Glu Glu Ala Ile Phe Asp Ser Ser Lys Tyr Ile Ile Leu Gln
2170          6180          6185          6190
2171 Lys Asp Leu Val Tyr Thr Leu Arg Ile Arg Asp Ala His Leu Asp Asp
2172          6195          6200          6205
2173 Gln Ala Asn Tyr Asn Val Ser Leu Thr Asn His Arg Gly Glu Asn Val
2174          6210          6215          6220
2175 Lys Ser Ala Ala Asn Leu Ile Val Glu Glu Glu Asp Leu Arg Ile Val
2176 6225          6230          6235          6240
2177 Glu Pro Leu Lys Asp Ile Glu Thr Met Glu Lys Lys Ser Val Thr Phe
2178          6245          6250          6255
2179 Trp Cys Lys Val Asn Arg Leu Asn Val Thr Leu Lys Trp Thr Lys Asn
2180          6260          6265          6270
2181 Gly Glu Glu Val Pro Phe Asp Asn Arg Val Ser Tyr Arg Val Asp Lys
2182          6275          6280          6285
2183 Tyr Lys His Met Leu Thr Ile Lys Asp Cys Gly Phe Pro Asp Glu Gly
2184          6290          6295          6300
2185 Glu Tyr Ile Val Thr Ala Gly Gln Asp Lys Ser Val Ala Glu Leu Leu
2186 6305          6310          6315          6320
2187 Ile Ile Glu Ala Pro Thr Glu Phe Val Glu His Leu Glu Asp Gln Thr
2188          6325          6330          6335
2189 Val Thr Glu Phe Asp Asp Ala Val Phe Ser Cys Gln Leu Ser Arg Glu
2190          6340          6345          6350
2191 Lys Ala Asn Val Lys Trp Tyr Arg Asn Gly Arg Glu Ile Lys Glu Gly
2192          6355          6360          6365
2193 Lys Lys Tyr Lys Phe Glu Lys Asp Gly Ser Ile His Arg Leu Ile Ile
2194          6370          6375          6380
2195 Lys Asp Cys Arg Leu Asp Asp Glu Cys Glu Tyr Ala Cys Gly Val Glu
2196 6385          6390          6395          6400
2197 Asp Arg Lys Ser Arg Ala Arg Leu Phe Val Glu Glu Ile Pro Val Glu
2198          6405          6410          6415
2199 Ile Ile Arg Pro Pro Gln Asp Ile Leu Glu Ala Pro Gly Ala Asp Val
2200          6420          6425          6430
2201 Val Phe Leu Ala Glu Leu Asn Lys Asp Lys Val Glu Val Gln Trp Leu
2202          6435          6440          6445
2203 Arg Asn Asn Met Val Val Val Gln Gly Asp Lys His Gln Met Met Ser
2204          6450          6455          6460
2205 Glu Gly Lys Ile His Arg Leu Gln Ile Cys Asp Ile Lys Pro Arg Asp
2206 6465          6470          6475          6480
2207 Gln Gly Glu Tyr Arg Phe Ile Ala Lys Asp Lys Glu Ala Arg Ala Lys
2208          6485          6490          6495

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 Output Set: N:\CRF3\01292001\I759508.raw

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2209 Leu Glu Leu Ala Ala Ala Pro Lys Ile Lys Thr Ala Asp Gln Asp Leu
2210           6500           6505           6510
2211 Val Val Asp Val Gly Lys Pro Leu Thr Met Val Val Pro Tyr Asp Ala
2212           6515           6520           6525
2213 Tyr Pro Lys Ala Glu Ala Glu Trp Phe Lys Glu Asn Glu Pro Leu Ser
2214           6530           6535           6540
2215 Thr Lys Thr Ile Asp Thr Thr Ala Glu Gln Thr Ser Phe Arg Ile Leu
2216 6545           6550           6555           6560
2217 Glu Ala Lys Lys Gly Asp Lys Gly Arg Tyr Lys Ile Val Leu Gln Asn
2218           6565           6570           6575
2219 Lys His Gly Lys Ala Glu Gly Phe Ile Asn Leu Lys Val Ile Asp Val
2220           6580           6585           6590
2221 Pro Gly Pro Val Arg Asn Leu Glu Val Thr Glu Thr Phe Asp Gly Glu
2222           6595           6600           6605
2223 Val Ser Leu Ala Trp Glu Glu Pro Leu Thr Asp Gly Gly Ser Lys Ile
2224           6610           6615           6620
2225 Ile Gly Tyr Val Val Glu Arg Arg Asp Ile Lys Arg Lys Thr Trp Val
2226 6625           6630           6635           6640
2227 Leu Ala Thr Asp Arg Ala Glu Ser Cys Glu Phe Thr Val Thr Gly Leu
2228           6645           6650           6655
2229 Gln Lys Gly Gly Val Glu Tyr Leu Phe Arg Val Ser Ala Arg Asn Arg
2230           6660           6665           6670
2231 Val Gly Thr Gly Glu Pro Val Glu Thr Asp Asn Pro Val Glu Ala Arg
2232           6675           6680           6685
2233 Ser Lys Tyr Asp Val Pro Gly Pro Pro Leu Asn Val Thr Ile Thr Asp
2234           6690           6695           6700
2235 Val Asn Arg Phe Gly Val Ser Leu Thr Trp Glu Pro Pro Glu Tyr Asp
2236 6705           6710           6715           6720
2237 Gly Gly Ala Glu Ile Thr Asn Tyr Val Ile Glu Leu Arg Asp Lys Thr
2238           6725           6730           6735
2239 Ser Ile Arg Trp Asp Thr Ala Met Thr Val Arg Ala Glu Asp Leu Ser
2240           6740           6745           6750
2241 Ala Thr Val Thr Asp Val Val Glu Gly Gln Glu Tyr Ser Phe Arg Val
2242           6755           6760           6765
2243 Arg Ala Glu Asn Arg Ile Gly Val Gly Lys Pro Ser Ala Ala Thr Pro
2244           6770           6775           6780
2245 Phe Val Lys Val Ala Asp Pro Ile Glu Arg Pro Ser Pro Pro Val Asn
2246 6785           6790           6795           6800
2247 Leu Thr Ser Ser Asp Gln Thr Gln Ser Ser Val Gln Leu Lys Trp Glu
2248           6805           6810           6815
2249 Pro Pro Leu Lys Asp Gly Gly Ser Pro Ile Leu Gly Tyr Ile Ile Glu
2250           6820           6825           6830
2251 Arg Cys Glu Glu Gly Lys Asp Asn Trp Ile Arg Cys Asn Met Lys Leu
2252           6835           6840           6845
2253 Val Pro Glu Leu Thr Tyr Lys Val Thr Gly Leu Glu Lys Gly Asn Lys
2254           6850           6855           6860
2255 Tyr Leu Tyr Arg Val Ser Ala Glu Asn Lys Ala Gly Val Ser Asp Pro
2256 6865           6870           6875           6880
2257 Ser Glu Ile Leu Gly Pro Leu Thr Ala Asp Asp Ala Phe Val Glu Pro

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 Output Set: N:\CRF3\01292001\I759508.raw

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2258                6885                6890                6895
2259 Thr Met Asp Leu Ser Ala Phe Lys Asp Gly Leu Glu Val Ile Val Pro
2260                6900                6905                6910
2261 Asn Pro Ile Thr Ile Leu Val Pro Ser Thr Gly Tyr Pro Arg Pro Thr
2262                6915                6920                6925
2263 Ala Thr Trp Cys Phe Gly Asp Lys Val Leu Glu Thr Gly Asp Arg Val
2264                6930                6935                6940
2265 Lys Met Lys Thr Leu Ser Ala Tyr Ala Glu Leu Val Ile Ser Pro Ser
2266 6945                6950                6955                6960
2267 Glu Arg Ser Asp Lys Gly Ile Tyr Thr Leu Lys Leu Glu Asn Arg Val
2268                6965                6970                6975
2269 Lys Thr Ile Ser Gly Glu Ile Asp Val Asn Val Ile Ala Arg Pro Ser
2270                6980                6985                6990
2271 Ala Pro Lys Glu Leu Lys Phe Gly Asp Ile Thr Lys Asp Ser Val His
2272                6995                7000                7005
2273 Leu Thr Trp Glu Pro Pro Asp Asp Gly Gly Ser Pro Leu Thr Gly
2274                7010                7015                7020
2275 Tyr Val Val Glu Lys Arg Glu Val Ser Arg Lys Thr Trp Thr Lys Val
2276 7025                7030                7035                7040
2277 Met Asp Phe Val Thr Asp Leu Glu Phe Thr Val Pro Asp Leu Val Gln
2278                7045                7050                7055
2279 Gly Lys Glu Tyr Leu Phe Lys Val Cys Ala Arg Asn Lys Cys Gly Pro
2280                7060                7065                7070
2281 Gly Glu Pro Ala Tyr Val Asp Glu Pro Val Asn Met Ser Thr Pro Ala
2282                7075                7080                7085
2283 Thr Val Pro Asp Pro Pro Glu Asn Val Lys Trp Arg Asp Arg Thr Ala
2284                7090                7095                7100
2285 Asn Ser Ile Phe Leu Thr Trp Asp Pro Pro Lys Asn Asp Gly Gly Ser
2286 7105                7110                7115                7120
2287 Arg Ile Lys Gly Tyr Ile Val Glu Arg Cys Pro Arg Gly Ser Asp Lys
2288                7125                7130                7135
2289 Trp Val Ala Cys Gly Glu Pro Val Ala Glu Thr Lys Met Glu Val Thr
2290                7140                7145                7150
2291 Gly Leu Glu Glu Gly Lys Trp Tyr Ala Tyr Arg Val Lys Thr Leu Asn
2292                7155                7160                7165
2293 Arg Gln Gly Ala Ser Lys Pro Ser Arg Pro Thr Glu Glu Ile Gln Ala
2294                7170                7175                7180
2295 Val Asp Thr Gln Glu Ala Pro Glu Ile Phe Leu Asp Val Lys Leu Leu
2296 7185                7190                7195                7200
2297 Ala Gly Leu Thr Val Lys Ala Gly Thr Lys Ile Glu Leu Pro Ala Thr
2298                7205                7210                7215
2299 Val Thr Gly Lys Pro Glu Pro Lys Ile Thr Trp Thr Lys Ala Asp Met
2300                7220                7225                7230
2301 Ile Leu Lys Gln Asp Lys Arg Ile Thr Ile Glu Asn Val Pro Lys Lys
2302                7235                7240                7245
2303 Ser Thr Val Thr Ile Val Asp Ser Lys Arg Ser Asp Thr Gly Thr Tyr
2304                7250                7255                7260
2305 Ile Ile Glu Ala Val Asn Val Cys Gly Arg Ala Thr Ala Val Val Glu
2306 7265                7270                7275                7280

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Input Set.: A:\00786.381002.SEQLIST.TXT  
 Output Set: N:\CRF3\01292001\I759508.raw

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2307 Val Asn Val Leu Asp Lys Pro Gly Pro Pro Ala Ala Phe Asp Ile Thr
2308                               7285                               7290       7295
2309 Asp Val Thr Asn Glu Ser Cys Leu Leu Thr Trp Asn Pro Pro Arg Asp
2310                               7300                               7305       7310
2311 Asp Gly Gly Ser Lys Ile Thr Asn Tyr Val Val Glu Arg Arg Ala Thr
2312                               7315                               7320       7325
2313 Asp Ser Glu Val Trp His Lys Leu Ser Ser Thr Val Lys Asp Thr Asn
2314       7330                               7335                               7340
2315 Phe Lys Ala Thr Lys Leu Ile Pro Asn Lys Glu Tyr Ile Phe Arg Val
2316 7345                               7350                               7355       7360
2317 Ala Ala Glu Asn Met Tyr Gly Ala Gly Glu Pro Val Gln Ala Ser Pro
2318                               7365                               7370       7375
2319 Ile Thr Ala Lys Tyr Gln Phe Asp Pro Pro Gly Pro Pro Thr Arg Leu
2320                               7380                               7385       7390
2321 Glu Pro Ser Asp Ile Thr Lys Asp Ala Val Thr Leu Thr Trp Cys Glu
2322                               7395                               7400       7405
2323 Pro Asp Asp Asp Gly Gly Ser Pro Ile Thr Gly Tyr Trp Val Glu Arg
2324       7410                               7415                               7420
2325 Leu Asp Pro Asp Thr Asp Lys Trp Val Arg Cys Asn Lys Met Pro Val
2326 7425                               7430                               7435       7440
2327 Lys Asp Thr Thr Tyr Arg Val Lys Gly Leu Thr Asn Lys Lys Lys Tyr
2328                               7445                               7450       7455
2329 Arg Phe Arg Val Leu Ala Glu Asn Leu Ala Gly Pro Gly Lys Pro Ser
2330       7460                               7465                               7470
2331 Lys Ser Thr Glu Pro Ile Leu Ile Lys Asp Pro Ile Asp Pro Pro Trp
2332       7475                               7480                               7485
2333 Pro Pro Gly Lys Pro Thr Val Lys Asp Val Gly Lys Thr Ser Val Arg
2334       7490                               7495                               7500
2335 Leu Asn Trp Thr Lys Pro Glu His Asp Gly Gly Ala Lys Ile Glu Ser
2336 7505                               7510                               7515       7520
2337 Tyr Val Ile Glu Met Leu Lys Thr Gly Thr Asp Glu Trp Val Arg Val
2338                               7525                               7530       7535
2339 Ala Glu Gly Val Pro Thr Thr Gln His Leu Leu Pro Gly Leu Met Glu
2340       7540                               7545                               7550
2341 Gly Gln Glu Tyr Ser Phe Arg Val Arg Ala Val Asn Lys Ala Gly Glu
2342       7555                               7560                               7565
2343 Ser Glu Pro Ser Glu Pro Ser Asp Pro Val Leu Cys Arg Glu Lys Leu
2344       7570                               7575                               7580
2345 Tyr Pro Pro Ser Pro Pro Arg Trp Leu Glu Val Ile Asn Ile Thr Lys
2346 7585                               7590                               7595       7600
2347 Asn Thr Ala Asp Leu Lys Trp Thr Val Pro Glu Lys Asp Gly Gly Ser
2348                               7605                               7610       7615
2349 Pro Ile Thr Asn Tyr Ile Val Glu Lys Arg Asp Val Arg Arg Lys Gly
2350       7620                               7625                               7630
2351 Trp Gln Thr Val Asp Thr Thr Val Lys Asp Thr Lys Cys Thr Val Thr
2352       7635                               7640                               7645
2353 Pro Leu Thr Glu Gly Ser Leu Tyr Val Phe Arg Val Ala Ala Glu Asn
2354       7650                               7655                               7660
2355 Ala Ile Gly Gln Ser Asp Tyr Thr Glu Ile Glu Asp Ser Val Leu Ala

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Input Set : A:\00786.381002.SEQLIST.TXT  
 Output Set: N:\CRF3\01292001\I759508.raw

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2356 7665          7670          7675          7680
2357 Lys Asp Thr Phe Thr Thr Pro Gly Pro Pro Tyr Ala Leu Ala Val Val
2358          7685          7690          7695
2359 Asp Val Thr Lys Arg His Val Asp Leu Lys Trp Glu Pro Pro Lys Asn
2360          7700          7705          7710
2361 Asp Gly Gly Arg Pro Ile Gln Arg Tyr Val Ile Glu Lys Lys Glu Arg
2362          7715          7720          7725
2363 Leu Gly Thr Arg Trp Val Lys Ala Gly Lys Thr Ala Gly Pro Asp Cys
2364          7730          7735          7740
2365 Asn Phe Arg Val Thr Asp Val Ile Glu Gly Thr Glu Val Gln Phe Glu
2366 7745          7750          7755          7760
2367 Val Arg Ala Glu Asn Glu Ala Gly Val Gly His Pro Ser Glu Pro Thr
2368          7765          7770          7775
2369 Glu Ile Leu Ser Ile Glu Asp Pro Thr Ser Pro Pro Ser Pro Pro Leu
2370          7780          7785          7790
2371 Asp Leu His Val Thr Asp Ala Gly Arg Lys His Ile Ala Ile Ala Trp
2372          7795          7800          7805
2373 Lys Pro Pro Glu Lys Asn Gly Gly Ser Pro Ile Ile Gly Tyr His Val
2374          7810          7815          7820
2375 Glu Met Cys Pro Val Gly Thr Glu Lys Trp Met Arg Val Asn Ser Arg
2376 7825          7830          7835          7840
2377 Pro Ile Lys Asp Leu Lys Phe Lys Val Glu Glu Gly Val Val Pro Asp
2378          7845          7850          7855
2379 Lys Glu Tyr Val Leu Arg Val Arg Ala Val Asn Ala Ile Gly Val Ser
2380          7860          7865          7870
2381 Glu Pro Ser Glu Ile Ser Glu Asn Val Val Ala Lys Asp Pro Asp Cys
2382          7875          7880          7885
2383 Lys Pro Thr Ile Asp Leu Glu Thr His Asp Ile Ile Val Ile Glu Gly
2384          7890          7895          7900
2385 Glu Lys Leu Ser Ile Pro Val Pro Phe Arg Ala Val Pro Val Pro Thr
2386 7905          7910          7915          7920
2387 Val Ser Trp His Lys Asp Gly Lys Glu Val Lys Ala Ser Asp Arg Leu
2388          7925          7930          7935
2389 Thr Met Lys Asn Asp His Ile Ser Ala His Leu Glu Val Pro Lys Ser
2390          7940          7945          7950
2391 Val Arg Ala Asp Ala Gly Ile Tyr Thr Ile Thr Leu Glu Asn Lys Leu
2392          7955          7960          7965
2393 Gly Ser Ala Thr Ala Ser Ile Asn Val Lys Val Ile Gly Leu Pro Gly
2394          7970          7975          7980
2395 Pro Cys Lys Asp Ile Lys Ala Ser Asp Ile Thr Lys Ser Ser Cys Lys
2396 7985          7990          7995          8000
2397 Leu Thr Trp Glu Pro Pro Glu Phe Asp Gly Gly Thr Pro Ile Leu His
2398          8005          8010          8015
2399 Tyr Val Leu Glu Arg Arg Glu Ala Gly Arg Arg Thr Tyr Ile Pro Val
2400          8020          8025          8030
2401 Met Ser Gly Glu Asn Lys Leu Ser Trp Thr Val Lys Asp Leu Ile Pro
2402          8035          8040          8045
2403 Asn Gly Glu Tyr Phe Phe Arg Val Lys Ala Val Asn Lys Val Gly Gly
2404          8050          8055          8060

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2405 Gly Glu Tyr Ile Glu Leu Lys Asn Pro Val Ile Ala Gln Asp Pro Lys
2406 8065      8070      8075      8080
2407 Gln Pro Pro Asp Pro Pro Val Asp Val Glu Val His Asn Pro Thr Ala
2408      8085      8090      8095
2409 Glu Ala Met Thr Ile Thr Trp Lys Pro Pro Leu Tyr Asp Gly Gly Ser
2410      8100      8105      8110
2411 Lys Ile Met Gly Tyr Ile Ile Glu Lys Ile Ala Lys Gly Glu Glu Arg
2412      8115      8120      8125
2413 Trp Lys Arg Cys Asn Glu His Leu Val Pro Ile Leu Thr Tyr Thr Ala
2414      8130      8135      8140
2415 Lys Gly Leu Glu Glu Gly Lys Glu Tyr Gln Phe Arg Val Arg Ala Glu
2416 8145      8150      8155      8160
2417 Asn Ala Ala Gly Ile Ser Glu Pro Ser Arg Ala Thr Pro Pro Thr Lys
2418      8165      8170      8175
2419 Ala Val Asp Pro Ile Asp Ala Pro Lys Val Ile Leu Arg Thr Ser Leu
2420      8180      8185      8190
2421 Glu Val Lys Arg Gly Asp Glu Ile Ala Leu Asp Ala Ser Ile Ser Gly
2422      8195      8200      8205
2423 Ser Pro Tyr Pro Thr Ile Thr Trp Ile Lys Asp Glu Asn Val Ile Val
2424      8210      8215      8220
2425 Pro Glu Glu Ile Lys Lys Arg Ala Ala Pro Leu Val Arg Arg Arg Lys
2426 8225      8230      8235      8240
2427 Gly Glu Val Gln Glu Glu Glu Pro Phe Val Leu Pro Leu Thr Gln Arg
2428      8245      8250      8255
2429 Leu Ser Ile Asp Asn Ser Lys Lys Gly Glu Ser Gln Leu Arg Val Arg
2430      8260      8265      8270
2431 Asp Ser Leu Arg Pro Asp His Gly Leu Tyr Met Ile Lys Val Glu Asn
2432      8275      8280      8285
2433 Asp His Gly Ile Ala Lys Ala Pro Cys Thr Val Ser Val Leu Asp Thr
2434      8290      8295      8300
2435 Pro Gly Pro Pro Ile Asn Phe Val Phe Glu Asp Ile Arg Lys Thr Ser
2436 8305      8310      8315      8320
2437 Val Leu Cys Lys Trp Glu Pro Pro Leu Asp Asp Gly Gly Ser Glu Ile
2438      8325      8330      8335
2439 Ile Asn Tyr Thr Leu Glu Lys Lys Asp Lys Thr Lys Pro Asp Ser Glu
2440      8340      8345      8350
2441 Trp Ile Val Val Thr Ser Thr Leu Arg His Cys Lys Tyr Ser Val Thr
2442      8355      8360      8365
2443 Lys Leu Ile Glu Gly Lys Glu Tyr Leu Phe Arg Val Arg Ala Glu Asn
2444      8370      8375      8380
2445 Arg Phe Gly Pro Gly Pro Pro Cys Val Ser Lys Pro Leu Val Ala Lys
2446 8385      8390      8395      8400
2447 Asp Pro Phe Gly Pro Pro Asp Ala Pro Asp Lys Pro Ile Val Glu Asp
2448      8405      8410      8415
2449 Val Thr Ser Asn Ser Met Leu Val Lys Trp Asn Glu Pro Lys Asp Asn
2450      8420      8425      8430
2451 Gly Ser Pro Ile Leu Gly Tyr Trp Leu Glu Lys Arg Glu Val Asn Ser
2452      8435      8440      8445
2453 Thr His Trp Ser Arg Val Asn Lys Ser Leu Leu Asn Ala Leu Lys Ala

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2454      8150      8455      8460
2455 Asn Val Asp Gly Leu Leu Glu Gly Leu Thr Tyr Val Phe Arg Val Cys
2456 8465      8470      8475      8480
2457 Ala Glu Asn Ala Ala Gly Pro Gly Lys Phe Ser Pro Pro Ser Asp Pro
2458      8485      8490      8495
2459 Lys Thr Ala His Asp Pro Ile Ser Pro Pro Gly Pro Pro Ile Pro Arg
2460      8500      8505      8510
2461 Val Thr Asp Thr Ser Ser Thr Thr Ile Glu Leu Glu Trp Glu Pro Pro
2462      8515      8520      8525
2463 Ala Phe Asn Gly Gly Gly Glu Ile Val Gly Tyr Phe Val Asp Lys Gln
2464      8530      8535      8540
2465 Leu Val Gly Thr Asn Lys Trp Ser Arg Cys Thr Glu Lys Met Ile Lys
2466 8545      8550      8555      8560
2467 Val Arg Gln Tyr Thr Val Lys Glu Ile Arg Glu Gly Ala Asp Tyr Lys
2468      8565      8570      8575
2469 Leu Arg Val Ser Ala Val Asn Ala Ala Gly Glu Gly Pro Pro Gly Glu
2470      8580      8585      8590
2471 Thr Gln Pro Val Thr Val Ala Glu Pro Gln Glu Pro Pro Ala Val Glu
2472      8595      8600      8605
2473 Leu Asp Val Ser Val Lys Gly Gly Ile Gln Ile Met Ala Gly Lys Thr
2474      8610      8615      8620
2475 Leu Arg Ile Pro Ala Val Val Thr Gly Arg Pro Val Pro Thr Lys Val
2476 8625      8630      8635      8640
2477 Trp Thr Lys Glu Glu Gly Glu Leu Asp Lys Asp Arg Val Val Ile Asp
2478      8645      8650      8655
2479 Asn Val Gly Thr Lys Ser Glu Leu Ile Ile Lys Asp Ala Leu Arg Lys
2480      8660      8665      8670
2481 Asp His Gly Arg Tyr Val Ile Thr Ala Thr Asn Ser Cys Gly Ser Lys
2482      8675      8680      8685
2483 Phe Ala Ala Ala Arg Val Glu Val Phe Asp Val Pro Gly Pro Val Leu
2484      8690      8695      8700
2485 Asp Leu Lys Pro Val Val Thr Asn Arg Lys Met Cys Leu Leu Asn Trp
2486 8705      8710      8715      8720
2487 Ser Asp Pro Glu Asp Asp Gly Gly Ser Glu Ile Thr Gly Phe Ile Ile
2488      8725      8730      8735
2489 Glu Arg Lys Asp Ala Lys Met His Thr Trp Arg Gln Pro Ile Glu Thr
2490      8740      8745      8750
2491 Glu Arg Ser Lys Cys Asp Ile Thr Gly Leu Leu Glu Gly Gln Glu Tyr
2492      8755      8760      8765
2493 Lys Phe Arg Val Ile Ala Lys Asn Lys Phe Gly Cys Gly Pro Pro Val
2494      8770      8775      8780
2495 Glu Ile Gly Pro Ile Leu Ala Val Asp Pro Leu Gly Pro Pro Thr Ser
2496 8785      8790      8795      8800
2497 Pro Glu Arg Leu Thr Tyr Thr Glu Arg Gln Arg Ser Thr Ile Thr Leu
2498      8805      8810      8815
2499 Asp Trp Lys Glu Pro Arg Ser Asn Gly Gly Ser Pro Ile Gln Gly Tyr
2500      8820      8825      8830
2501 Ile Ile Glu Lys Arg Arg His Asp Lys Pro Asp Phe Glu Arg Val Asn
2502      8835      8840      8845

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```

2503 Lys Arg Leu Cys Pro Thr Thr Ser Phe Leu Val Glu Asn Leu Asp Glu
2504      8850      8855      8860
2505 His Gln Met Tyr Glu Phe Arg Val Lys Ala Val Asn Glu Ile Gly Glu
2506 8865      8870      8875      8880
2507 Ser Glu Pro Ser Leu Pro Leu Asn Val Val Ile Gln Asp Asp Glu Val
2508      8885      8890      8895
2509 Pro Pro Thr Ile Lys Leu Arg Leu Ser Val Arg Gly Asp Thr Ile Lys
2510      8900      8905      8910
2511 Val Lys Ala Gly Glu Pro Val His Ile Pro Ala Asp Val Thr Gly Leu
2512      8915      8920      8925
2513 Pro Met Pro Lys Ile Glu Trp Ser Lys Asn Glu Thr Val Ile Glu Lys
2514      8930      8935      8940
2515 Pro Thr Asp Ala Leu Gln Ile Thr Lys Glu Glu Val Ser Arg Ser Glu
2516 8945      8950      8955      8960
2517 Ala Lys Thr Glu Leu Ser Ile Pro Lys Ala Val Arg Glu Asp Lys Gly
2518      8965      8970      8975
2519 Thr Tyr Thr Val Thr Ala Ser Asn Arg Leu Gly Ser Val Phe Arg Asn
2520      8980      8985      8990
2521 Val His Val Glu Val Tyr Asp Arg Pro Ser Pro Pro Arg Asn Leu Ala
2522      8995      9000      9005
2523 Val Thr Asp Ile Lys Ala Glu Ser Cys Tyr Leu Thr Trp Asp Ala Pro
2524      9010      9015      9020
2525 Leu Asp Asn Gly Gly Ser Glu Ile Thr His Tyr Val Ile Asp Lys Arg
2526 9025      9030      9035      9040
2527 Asp Ala Ser Arg Lys Lys Ala Glu Trp Glu Glu Val Thr Asn Thr Ala
2528      9045      9050      9055
2529 Val Glu Lys Arg Tyr Gly Ile Trp Lys Leu Ile Pro Asn Gly Gln Tyr
2530      9060      9065      9070
2531 Glu Phe Arg Val Arg Ala Val Asn Lys Tyr Gly Ile Ser Asp Glu Cys
2532      9075      9080      9085
2533 Lys Ser Asp Lys Val Val Ile Gln Asp Pro Tyr Arg Leu Pro Gly Pro
2534      9090      9095      9100
2535 Pro Gly Lys Pro Lys Val Leu Ala Arg Thr Lys Gly Ser Met Leu Val
2536 9105      9110      9115      9120
2537 Ser Trp Thr Pro Pro Leu Asp Asn Gly Gly Ser Pro Ile Thr Gly Tyr
2538      9125      9130      9135
2539 Trp Leu Glu Lys Arg Glu Glu Gly Ser Pro Tyr Trp Ser Arg Val Ser
2540      9140      9145      9150
2541 Arg Ala Pro Ile Thr Lys Val Gly Leu Lys Gly Val Glu Phe Asn Val
2542      9155      9160      9165
2543 Pro Arg Leu Leu Glu Gly Val Lys Tyr Gln Phe Arg Ala Met Ala Ile
2544      9170      9175      9180
2545 Asn Ala Ala Gly Ile Gly Pro Pro Ser Glu Pro Ser Asp Pro Glu Val
2546 9185      9190      9195      9200
2547 Ala Gly Asp Pro Ile Phe Pro Pro Gly Pro Pro Ser Cys Pro Glu Val
2548      9205      9210      9215
2549 Lys Asp Lys Thr Lys Ser Ser Ile Ser Leu Gly Trp Lys Pro Pro Ala
2550      9220      9225      9230
2551 Lys Asp Gly Gly Ser Pro Ile Lys Gly Tyr Ile Val Glu Met Gln Glu

```

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Input Set : A:\00786.381002.SEQLIST.TXT  
 Output Set: N:\CRF3\01292001\I759508.raw

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2552          9235          9240          9245
2553 Glu Gly Thr Thr Asp Trp Lys Arg Val Asn Glu Pro Asp Lys Leu Ile
2554          9250          9255          9260
2555 Thr Thr Cys Glu Cys Val Val Pro Asn Leu Lys Glu Leu Arg Lys Tyr
2556 9265          9270          9275          9280
2557 Arg Phe Arg Val Lys Ala Val Asn Glu Ala Gly Glu Ser Glu Pro Ser
2558          9285          9290          9295
2559 Asp Thr Thr Gly Glu Ile Pro Ala Thr Asp Ile Gln Glu Glu Pro Glu
2560          9300          9305          9310
2561 Val Phe Ile Asp Ile Gly Ala Gln Asp Cys Leu Val Cys Lys Ala Gly
2562          9315          9320          9325
2563 Ser Gln Ile Arg Ile Pro Ala Val Ile Lys Gly Arg Pro Thr Pro Lys
2564          9330          9335          9340
2565 Ser Ser Trp Trp Glu Phe Asp Gly Lys Ala Lys Lys Ala Met Lys Asp Gly
2566 9345          9350          9355          9360
2567 Val His Asp Ile Pro Glu Asp Ala Gln Leu Glu Thr Ala Glu Asn Ser
2568          9365          9370          9375
2569 Ser Val Ile Ile Ile Pro Glu Cys Lys Arg Ser His Thr Gly Lys Tyr
2570          9380          9385          9390
2571 Ser Ile Thr Ala Lys Asn Lys Ala Gly Gln Lys Thr Ala Asn Cys Arg
2572          9395          9400          9405
2573 Val Lys Val Met Asp Val Pro Gly Pro Pro Lys Asp Leu Lys Val Ser
2574          9410          9415          9420
2575 Asp Ile Thr Arg Gly Ser Cys Arg Leu Ser Trp Lys Met Pro Asp Asp
2576 9425          9430          9435          9440
2577 Asp Gly Gly Asp Arg Ile Lys Gly Tyr Val Ile Glu Lys Arg Thr Ile
2578          9445          9450          9455
2579 Asp Gly Lys Ala Trp Thr Lys Val Asn Pro Asp Cys Gly Ser Thr Thr
2580          9460          9465          9470
2581 Phe Val Val Pro Asp Leu Leu Ser Glu Gln Gln Tyr Phe Phe Arg Val
2582          9475          9480          9485
2583 Arg Ala Glu Asn Arg Phe Gly Ile Gly Pro Pro Val Glu Thr Ile Gln
2584          9490          9495          9500
2585 Arg Thr Thr Ala Arg Asp Pro Ile Tyr Pro Pro Asp Pro Pro Ile Lys
2586 9505          9510          9515          9520
2587 Leu Lys Ile Gly Leu Ile Thr Lys Asn Thr Val His Leu Ser Trp Lys
2588          9525          9530          9535
2589 Pro Pro Lys Asn Asp Gly Gly Ser Pro Val Thr His Tyr Ile Val Glu
2590          9540          9545          9550
2591 Cys Leu Ala Trp Asp Pro Thr Gly Thr Lys Lys Glu Ala Trp Arg Gln
2592          9555          9560          9565
2593 Cys Asn Lys Arg Asp Val Glu Glu Leu Gln Phe Thr Val Glu Asp Leu
2594          9570          9575          9580
2595 Val Glu Gly Gly Glu Tyr Glu Phe Arg Val Lys Ala Val Asn Ala Ala
2596 9585          9590          9595          9600
2597 Gly Val Ser Lys Pro Ser Ala Thr Val Gly Pro Cys Asp Cys Gln Arg
2598          9605          9610          9615
2599 Pro Asp Met Pro Pro Ser Ile Asp Leu Lys Glu Phe Met Glu Val Glu
2600          9620          9625          9630

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Input Set : A:\00786.381002.SEQLIST.TXT  
 Output Set: N:\CRF3\01292001\I759508.raw

```

2601 Glu Gly Thr Asn Val Asn Ile Val Ala Lys Ile Lys Gly Val Pro Phe
2602          9635          9640          9645
2603 Pro Thr Leu Thr Trp Phe Lys Ala Pro Pro Lys Lys Pro Asp Asn Lys
2604          9650          9655          9660
2605 Glu Pro Val Leu Tyr Asp Thr His Val Asn Lys Leu Val Val Asp Asp
2606 9665          9670          9675          9680
2607 Thr Cys Thr Leu Val Ile Pro Gln Ser Arg Arg Ser Asp Thr Gly Leu
2608          9685          9690          9695
2609 Tyr Thr Ile Thr Ala Val Asn Asn Leu Gly Thr Ala Ser Lys Glu Met
2610          9700          9705          9710
2611 Arg Leu Asn Val Leu Gly Arg Pro Gly Pro Pro Val Gly Pro Ile Lys
2612          9715          9720          9725
2613 Phe Glu Ser Val Ser Ala Asp Gln Met Thr Leu Ser Trp Phe Pro Pro
2614          9730          9735          9740
2615 Lys Asp Asp Gly Gly Ser Lys Ile Thr Asn Tyr Val Ile Glu Lys Arg
2616 9745          9750          9755          9760
2617 Glu Ala Asn Arg Lys Thr Trp Val His Val Ser Ser Glu Pro Lys Glu
2618          9765          9770          9775
2619 Cys Thr Tyr Thr Ile Pro Lys Leu Leu Glu Gly His Glu Tyr Val Phe
2620          9780          9785          9790
2621 Arg Ile Met Ala Gln Asn Lys Tyr Gly Ile Gly Glu Pro Leu Asp Ser
2622          9795          9800          9805
2623 Glu Pro Glu Thr Ala Arg Asn Leu Phe Ser Val Pro Gly Ala Pro Asp
2624          9810          9815          9820
2625 Lys Pro Thr Val Ser Ser Val Thr Arg Asn Ser Met Thr Val Asn Trp
2626 9825          9830          9835          9840
2627 Glu Glu Pro Glu Tyr Asp Gly Gly Ser Pro Val Thr Gly Tyr Trp Leu
2628          9845          9850          9855
2629 Glu Met Lys Asp Thr Thr Ser Lys Arg Trp Lys Arg Val Asn Arg Asp
2630          9860          9865          9870
2631 Pro Ile Lys Ala Met Thr Leu Gly Val Ser Tyr Lys Val Thr Gly Leu
2632          9875          9880          9885
2633 Ile Glu Gly Ser Asp Tyr Gln Phe Arg Val Tyr Ala Ile Asn Ala Ala
2634          9890          9895          9900
2635 Gly Val Gly Pro Ala Ser Leu Pro Ser Asp Pro Ala Thr Ala Arg Asp
2636 9905          9910          9915          9920
2637 Pro Ile Ala Pro Pro Gly Pro Pro Phe Pro Lys Val Thr Asp Trp Thr
2638          9925          9930          9935
2639 Lys Ser Ser Ala Asp Leu Glu Trp Ser Pro Pro Leu Lys Asp Gly Gly
2640          9940          9945          9950
2641 Ser Lys Val Thr Gly Tyr Ile Val Glu Tyr Lys Glu Glu Gly Lys Glu
2642          9955          9960          9965
2643 Glu Trp Glu Lys Gly Lys Asp Lys Glu Val Arg Gly Thr Lys Leu Val
2644          9970          9975          9980
2645 Val Thr Gly Leu Lys Glu Gly Ala Phe Tyr Lys Phe Arg Val Ser Ala
2646 9985          9990          9995          10000
2647 Val Asn Ile Ala Gly Ile Gly Glu Pro Gly Glu Val Thr Asp Val Ile
2648          10005          10010          10015
2649 Glu Met Lys Asp Arg Leu Val Ser Pro Asp Leu Gln Leu Asp Ala Ser

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Input Set : A:\00786.381002.SEQLIST.TXT  
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2650 10020 10025 10030  
2651 Val Arg Asp Arg Ile Val Val His Ala Gly Gly Val Ile Arg Ile Ile  
2652 10035 10040 10045  
2653 Ala Tyr Val Ser Gly Lys Pro Pro Pro Thr Val Thr Trp Asn Met Asn  
E--> 2654 10050 10055 10060  
2655 Glu Arg Thr Leu Pro Gln Glu Ala Thr Ile Glu Thr Thr Ala Ile Ser  
E--> 2656 10065 10070 10075 10080  
2657 Ser Ser Met Val Ile Lys Asn Cys Gln Arg Ser His Gln Gly Val Tyr  
2658 10085 10090 10095  
2659 Ser Leu Leu Ala Lys Asn Glu Ala Gly Glu Arg Lys Lys Thr Ile Ile  
2660 10100 10105 10110  
2661 Val Asp Val Leu Asp Val Pro Gly Pro Val Gly Thr pro Phe Leu Ala  
2662 10115 10120 10125  
2663 His Asn Leu Thr Asn Glu Ser Cys Lys Leu Thr Trp Phe Ser Pro Glu  
E--> 2664 10130 10135 10140  
2665 Asp Asp Gly Gly Ser Pro Ile Thr Asn Tyr Val Ile Glu Lys Arg Glu  
E--> 2666 10145 10150 10155 10160  
2667 Ser Asp Arg Arg Ala Trp Thr Pro Val Thr Tyr Thr Val Thr Arg Gln  
2668 10165 10170 10175  
2669 Asn Ala Thr Val Gln Gly Leu Ile Gln Gly Lys Ala Tyr Phe Phe Arg  
2670 10180 10185 10190  
2671 Ile Ala Ala Glu Asn Ser Ile Gly Met Gly Pro Phe Val Glu Thr Ser  
2672 10195 10200 10205  
2673 Glu Ala Leu Val Ile Arg Glu Pro Ile Thr Val Pro Glu Arg Pro Glu  
E--> 2674 10210 10215 10220  
2675 Asp Leu Glu Val Lys Glu Val Thr Lys Asn Thr Val Thr Leu Thr Trp  
E--> 2676 10225 10230 10235 10240  
2677 Asn Pro Pro Lys Tyr Asp Gly Gly Ser Glu Ile Ile Asn Tyr Val Leu  
2678 10245 10250 10255  
2679 Glu Ser Arg Leu Ile Gly Thr Glu Lys Phe His Lys Val Thr Asn Asp  
2680 10260 10265 10270  
2681 Asn Leu Leu Ser Arg Lys Tyr Thr Val Lys Gly Leu Lys Glu Gly Asp  
2682 10275 10280 10285  
2683 Thr Tyr Glu Tyr Arg Val Ser Ala Val Asn Ile Val Gly Gln Gly Lys  
E--> 2684 10290 10295 10300  
2685 Pro Ser Phe Cys Thr Lys Pro Ile Thr Cys Lys Asp Glu Leu Ala Pro  
E--> 2686 10305 10310 10315 10320  
2687 Pro Thr Leu His Leu Asp Phe Arg Asp Lys Leu Thr Ile Arg Val Gly  
2688 10325 10330 10335  
2689 Glu Ala Phe Ala Leu Thr Gly Arg Tyr Ser Gly Lys Pro Lys Pro Lys  
2690 10340 10345 10350  
2691 Val Ser Trp Phe Lys Asp Glu Ala Asp Val Leu Glu Asp Asp Arg Thr  
2692 10355 10360 10365  
2693 His Ile Lys Thr Thr Pro Ala Thr Leu Ala Leu Glu Lys Ile Lys Ala  
E--> 2694 10370 10375 10380  
2695 Lys Arg Ser Asp Ser Gly Lys Tyr Cys Val Val Val Glu Asn Ser Thr  
E--> 2696 10385 10390 10395 10400  
2697 Gly Ser Arg Lys Gly Phe Cys Gln Val Asn Val Val Asp His Pro Gly  
2698 10405 10410 10415

Delete. First  
numeral is jumping  
back to previous  
line.

Glu Arg  
10065

Asp Asp  
10145

Asp Leu  
10225

Pro Ser  
10305

For left margin numerals, leave  
enough space between the first  
two amino acids so the numeral  
does not fall under any part  
of the second amino acid. See  
examples at left.

\* Please note that this error occurs  
throughout the rest of sequence #2.  
Please correct all instances.

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Input Set : A:\00786.381002.SEQLIST.TXT  
 Output Set: N:\CRF3\01292001\I759508.raw

```

2699 Pro Pro Val Gly Pro Val Ser Phe Asp Glu Val Thr Lys Asp Tyr Met
2700      10420      10425      10430
2701 Val Ile Ser Trp Lys Pro Pro Leu Asp Asp Gly Gly Ser Lys Ile Thr
2702      10435      10440      10445
2703 Asn Tyr Ile Ile Glu Lys Lys Glu Val Gly Lys Asp Val Trp Met Pro
E--> 2704 10450      10455      10460 1
2705 Val Thr Ser Ala Ser Ala Lys Thr Thr Cys Lys Val Ser Lys Leu Leu
E--> 2706 0465      10470      10475      10480
2707 Glu Gly Lys Asp Tyr Ile Phe Arg Ile His Ala Glu Asn Leu Tyr Gly
2708      10485      10490      10495
2709 Ile Ser Asp Pro Leu Val Ser Asp Ser Met Lys Ala Lys Asp Arg Phe
2710      10500      10505      10510
2711 Arg Val Pro Asp Ala Pro Asp Gln Pro Ile Val Thr Glu Val Thr Lys
2712      10515      10520      10525
2713 Asp Ser Ala Leu Val Thr Trp Asn Lys Pro His Asp Gly Gly Lys Pro
E--> 2714 10530      10535      10540 1
2715 Ile Thr Asn Tyr Ile Leu Glu Lys Arg Glu Thr Met Ser Lys Arg Trp
E--> 2716 0545      10550      10555      10560
2717 Ala Arg Val Thr Lys Asp Pro Ile His Pro Tyr Thr Lys Phe Arg Val
2718      10565      10570      10575
2719 Pro Asp Leu Leu Glu Gly Cys Gln Tyr Glu Phe Arg Val Ser Ala Glu
2720      10580      10585      10590
2721 Asn Glu Ile Gly Ile Gly Asp Pro Ser Pro Pro Ser Lys Pro Val Phe
2722      10595      10600      10605
2723 Ala Lys Asp Pro Ile Ala Lys Pro Ser Pro Pro Val Asn Pro Glu Ala
E--> 2724 10610      10615      10620 1
2725 Ile Asp Thr Thr Cys Asn Ser Val Asp Leu Thr Trp Gln Pro Pro Arg
E--> 2726 0625      10630      10635      10640
2727 His Asp Gly Gly Ser Lys Ile Leu Gly Tyr Ile Val Glu Tyr Gln Lys
2728      10645      10650      10655
2729 Val Gly Asp Glu Glu Trp Arg Arg Ala Asn His Thr Pro Glu Ser Cys
2730      10660      10665      10670
2731 Pro Glu Thr Lys Tyr Lys Val Thr Gly Leu Arg Asp Gly Gln Thr Tyr
2732      10675      10680      10685
2733 Lys Phe Arg Val Leu Ala Val Asn Ala Ala Gly Glu Ser Asp Pro Ala
E--> 2734 10690      10695      10700 1
2735 His Val Pro Glu Pro Val Leu Val Lys Asp Arg Leu Glu Pro Pro Glu
E--> 2736 0705      10710      10715      10720
2737 Leu Ile Leu Asp Ala Asn Met Ala Arg Glu Gln His Ile Lys Val Gly
2738      10725      10730      10735
2739 Asp Thr Leu Arg Leu Ser Ala Ile Ile Lys Gly Val Pro Phe Pro Lys
2740      10740      10745      10750
2741 Val Thr Trp Lys Lys Glu Asp Arg Asp Ala Pro Thr Lys Ala Arg Ile
2742      10755      10760      10765
2743 Asp Val Thr Pro Val Gly Ser Lys Leu Glu Ile Arg Asn Ala Ala His
E--> 2744 10770      10775      10780 1
2745 Glu Asp Gly Gly Ile Tyr Ser Leu Thr Val Glu Asn Pro Ala Gly Ser
E--> 2746 0785      10790      10795      10800
2747 Lys Thr Val Ser Val Lys Val Leu Val Leu Asp Lys Pro Gly Pro Pro

```

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 TIME: 13:24:54

Input Set : A:\00786.381002.SEQLIST.TXT  
 Output Set: N:\CRF3\01292001\I759508.raw

```

2748          10805          10810          10815
2749 Arg Asp Leu Glu Val Ser Glu Ile Arg Lys Asp Ser Cys Tyr Leu Thr
2750          10820          10825          10830
2751 Trp Lys Glu Pro Leu Asp Asp Gly Gly Ser Val Ile Thr Asn Tyr Val
2752          10835          10840          10845
2753 Val Glu Arg Arg Asp Val Ala Ser Ala Gln Trp Ser Pro Leu Ser Ala
E--> 2754          10850          10855          10860          1
2755 Thr Ser Lys Lys Lys Ser His Phe Ala Lys His Leu Asn Glu Gly Asn
E--> 2756 0865          10870          10875          10880
2757 Gln Tyr Leu Phe Arg Val Ala Ala Glu Asn Gln Tyr Gly Arg Gly Pro
2758          10885          10890          10895
2759 Phe Val Glu Thr Pro Lys Pro Ile Lys Ala Leu Asp Pro Leu His Pro
2760          10900          10905          10910
2761 Pro Gly Pro Pro Lys Asp Leu His His Val Asp Val Asp Lys Thr Glu
2762          10915          10920          10925
2763 Val Ser Leu Val Trp Asn Lys Pro Asp Arg Asp Gly Ser Pro Ile
E--> 2764          10930          10935          10940          1
2765 Thr Gly Tyr Leu Val Glu Tyr Gln Glu Glu Gly Thr Gln Asp Trp Ile
E--> 2766 0945          10950          10955          10960
2767 Lys Phe Lys Thr Val Thr Asn Leu Glu Cys Val Val Thr Gly Leu Gln
2768          10965          10970          10975
2769 Gln Gly Lys Thr Tyr Arg Phe Arg Val Lys Ala Glu Asn Ile Val Gly
2770          10980          10985          10990
2771 Leu Gly Leu Pro Asp Thr Thr Ile Pro Ile Glu Cys Gln Glu Lys Leu
2772          10995          11000          11005
2773 Val Pro Pro Ser Val Glu Leu Asp Val Lys Leu Ile Glu Gly Leu Val
E--> 2774          11010          11015          11020          1
2775 Val Lys Ala Gly Thr Thr Val Arg Phe Pro Ala Ile Ile Arg Gly Val
E--> 2776 1025          11030          11035          11040
2777 Pro Val Pro Thr Ala Lys Trp Thr Thr Asp Gly Ser Glu Ile Lys Thr
2778          11045          11050          11055
2779 Asp Glu His Tyr Thr Val Glu Thr Asp Asn Phe Ser Ser Val Leu Thr
2780          11060          11065          11070
2781 Ile Lys Asn Cys Leu Arg Arg Asp Thr Gly Glu Tyr Gln Ile Thr Val
2782          11075          11080          11085
2783 Ser Asn Ala Ala Gly Ser Lys Thr Val Ala Val His Leu Thr Val Leu
E--> 2784          11090          11095          11100          1
2785 Asp Val Pro Gly Pro Pro Thr Gly Pro Ile Asn Ile Leu Asp Val Thr
E--> 2786 1105          11110          11115          11120
2787 Pro Glu His Met Thr Ile Ser Trp Gln Pro Pro Lys Asp Asp Gly Gly
2788          11125          11130          11135
2789 Ser Pro Val Ile Asn Tyr Ile Val Glu Lys Gln Asp Thr Arg Lys Asp
2790          11140          11145          11150
2791 Thr Trp Gly Val Val Ser Ser Gly Ser Ser Lys Thr Lys Leu Lys Ile
2792          11155          11160          11165
2793 Pro His Leu Gln Lys Gly Cys Glu Tyr Val Phe Arg Val Arg Ala Glu
E--> 2794          11170          11175          11180          1
2795 Asn Lys Ile Gly Val Gly Pro Pro Leu Asp Ser Thr Pro Thr Val Ala
E--> 2796 1185          11190          11195          11200

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Input Set : A:\00786.381002.SEQLIST.TXT  
 Output Set: N:\CRF3\01292001\I759508.raw

```

2797 Lys His Lys Phe Ser Pro Pro Ser Pro Pro Gly Lys Pro Val Val Thr
2798                      11205                      11210                      11215
2799 Asp Ile Thr Glu Asn Ala Ala Thr Val Ser Trp Thr Leu Pro Lys Ser
2800                      11220                      11225                      11230
2801 Asp Gly Gly Ser Pro Ile Thr Gly Tyr Tyr Met Glu Arg Arg Glu Val
2802                      11235                      11240                      11245
2803 Thr Gly Lys Trp Val Arg Val Asn Lys Thr Pro Ile Ala Asp Leu Lys
E--> 2804      11250                      11255                      11260                      1
2805 Phe Arg Val Thr Gly Leu Tyr Glu Gly Asn Thr Tyr Glu Phe Arg Val
E--> 2806 1265                      11270                      11275                      11280
2807 Phe Ala Glu Asn Leu Ala Gly Leu Ser Lys Pro Ser Pro Ser Ser Asp
2808                      11285                      11290                      11295
2809 Pro Ile Lys Ala Cys Arg Pro Ile Lys Pro Pro Gly Pro Pro Ile Asn
2810                      11300                      11305                      11310
2811 Pro Lys Leu Lys Asp Lys Ser Arg Glu Thr Ala Asp Leu Val Trp Thr
2812                      11315                      11320                      11325
2813 Lys Pro Leu Ser Asp Gly Gly Ser Pro Ile Leu Gly Tyr Val Val Glu
E--> 2814      11330                      11335                      11340                      1
2815 Cys Gln Lys Pro Gly Thr Ala Gln Trp Asn Arg Ile Asn Lys Asp Glu
E--> 2816 1345                      11350                      11355                      11360
2817 Leu Ile Arg Glu Cys Ala Phe Arg Val Pro Gly Leu Ile Glu Gly Asn
2818                      11365                      11370                      11375
2819 Glu Tyr Arg Phe Arg Ile Lys Ala Ala Asn Ile Val Gly Glu Gly Glu
2820                      11380                      11385                      11390
2821 Pro Arg Glu Leu Ala Glu Ser Val Ile Ala Lys Asp Ile Leu His Pro
2822                      11395                      11400                      11405
2823 Pro Glu Val Glu Leu Asp Val Thr Cys Arg Asp Val Ile Thr Val Arg
E--> 2824      11410                      11415                      11420                      1
2825 Val Gly Gln Thr Ile Arg Ile Leu Ala Arg Val Lys Gly Arg Pro Glu
E--> 2826 1425                      11430                      11435                      11440
2827 Pro Asp Ile Thr Trp Thr Lys Glu Gly Lys Val Leu Val Arg Glu Lys
2828                      11445                      11450                      11455
2829 Arg Val Asp Leu Ile Gln Asp Leu Pro Arg Val Glu Leu Gln Ile Lys
2830                      11460                      11465                      11470
2831 Glu Ala Val Arg Ala Asp His Gly Lys Tyr Ile Ile Ser Ala Lys Asn
2832                      11475                      11480                      11485
2833 Ser Ser Gly His Ala Gln Gly Ser Ala Ile Val Asn Val Leu Asp Arg
E--> 2834      11490                      11495                      11500                      1
2835 Pro Gly Pro Cys Gln Asn Leu Lys Val Thr Asn Val Thr Lys Glu Asn
E--> 2836 1505                      11510                      11515                      11520
2837 Cys Thr Ile Ser Trp Glu Asn Pro Leu Asp Asn Gly Gly Ser Glu Ile
2838                      11525                      11530                      11535
2839 Thr Asn Phe Ile Val Glu Tyr Arg Lys Pro Asn Gln Lys Gly Trp Ser
2840                      11540                      11545                      11550
2841 Ile Val Ala Ser Asp Val Thr Lys Arg Leu Ile Lys Ala Asn Leu Leu
2842                      11555                      11560                      11565
2843 Ala Asn Asn Glu Tyr Tyr Phe Arg Val Cys Ala Glu Asn Lys Val Gly
E--> 2844      11570                      11575                      11580                      1
2845 Val Gly Pro Thr Ile Glu Thr Lys Thr Pro Ile Leu Ala Ile Asn Pro

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Input Set : A:\00786.381002.SEQLIST.TXT  
 Output Set: N:\CRF3\01292001\1759508.raw

```

E--> 2846 1585                    11590                    11595                    11600
      2847 Ile Asp Arg Pro Gly Glu Pro Glu Asn Leu His Ile Ala Asp Lys Gly
      2848                    11605                    11610                    11615
      2849 Lys Thr Phe Val Tyr Leu Lys Trp Arg Arg Pro Asp Tyr Asp Gly Gly
      2850                    11620                    11625                    11630
      2851 Ser Pro Asn Leu Ser Tyr His Val Glu Arg Arg Leu Lys Gly Ser Asp
      2852                    11635                    11640                    11645
      2853 Asp Trp Glu Arg Val His Lys Gly Ser Ile Lys Glu Thr His Tyr Met
E--> 2854 11650                    11655                    11660                    1
      2855 Val Asp Arg Cys Val Glu Asn Gln Ile Tyr Glu Phe Arg Val Gln Thr
E--> 2856 1665                    11670                    11675                    11680
      2857 Lys Asn Glu Gly Gly Glu Ser Asp Trp Val Lys Thr Glu Glu Val Val
      2858                    11685                    11690                    11695
      2859 Val Lys Glu Asp Leu Gln Lys Pro Val Leu Asp Leu Lys Leu Ser Gly
      2860                    11700                    11705                    11710
      2861 Val Leu Thr Val Lys Ala Gly Asp Thr Ile Arg Leu Glu Ala Gly Val
      2862                    11715                    11720                    11725
      2863 Arg Gly Lys Pro Phe Pro Glu Val Ala Trp Thr Lys Asp Lys Asp Ala
E--> 2864 11730                    11735                    11740                    1
      2865 Thr Asp Leu Thr Arg Ser Pro Arg Val Lys Ile Asp Thr Arg Ala Asp
E--> 2866 1745                    11750                    11755                    11760
      2867 Ser Ser Lys Phe Ser Leu Thr Lys Ala Lys Arg Ser Asp Gly Gly Lys
      2868                    11765                    11770                    11775
      2869 Tyr Val Val Thr Ala Thr Asn Thr Ala Gly Ser Phe Val Ala Tyr Ala
      2870                    11780                    11785                    11790
      2871 Thr Val Asn Val Leu Asp Lys Pro Gly Pro Val Arg Asn Leu Lys Ile
      2872                    11795                    11800                    11805
      2873 Val Asp Val Ser Ser Asp Arg Cys Thr Val Cys Trp Asp Pro Pro Glu
E--> 2874 11810                    11815                    11820                    1
      2875 Asp Asp Gly Gly Cys Glu Ile Gln Asn Tyr Ile Leu Glu Lys Cys Glu
E--> 2876 1825                    11830                    11835                    11840
      2877 Thr Lys Arg Met Val Trp Ser Thr Tyr Ser Ala Thr Val Leu Thr Pro
      2878                    11845                    11850                    11855
      2879 Gly Thr Thr Val Thr Arg Leu Ile Glu Gly Asn Glu Tyr Ile Phe Arg
      2880                    11860                    11865                    11870
      2881 Val Arg Ala Glu Asn Lys Ile Gly Thr Gly Pro Pro Thr Glu Ser Lys
      2882                    11875                    11880                    11885
      2883 Pro Val Ile Ala Lys Thr Lys Tyr Asp Lys Pro Gly Arg Pro Asp Pro
E--> 2884 11890                    11895                    11900                    1
      2885 Pro Glu Val Thr Lys Val Ser Lys Glu Glu Met Thr Val Val Trp Asn
E--> 2886 1905                    11910                    11915                    11920
      2887 Pro Pro Glu Tyr Asp Gly Gly Lys Ser Ile Thr Gly Tyr Phe Leu Glu
      2888                    11925                    11930                    11935
      2889 Lys Lys Glu Lys His Ser Thr Arg Trp Val Pro Val Asn Lys Ser Ala
      2890                    11940                    11945                    11950
      2891 Ile Pro Glu Arg Arg Met Lys Val Gln Asn Leu Leu Pro Asp His Glu
      2892                    11955                    11960                    11965
      2893 Tyr Gln Phe Arg Val Lys Ala Glu Asn Glu Ile Gly Ile Gly Glu Pro
E--> 2894 11970                    11975                    11980                    1

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```

2895 Ser Leu Pro Ser Arg Pro Val Val Ala Lys Asp Pro Ile Glu Pro Pro
E--> 2896 1985          11990          11995          12000
2897 Gly Pro Pro Thr Asn Phe Arg Val Val Asp Thr Thr Lys His Ser Ile
2898          12005          12010          12015
2899 Thr Leu Gly Trp Gly Lys Pro Val Tyr Asp Gly Gly Ala Pro Ile Ile
2900          12020          12025          12030
2901 Gly Tyr Val Val Glu Met Arg Pro Lys Ile Ala Asp Ala Ser Pro Asp
2902          12035          12040          12045
2903 Glu Gly Trp Lys Arg Cys Asn Ala Ala Ala Glu Leu Val Arg Lys Glu
E--> 2904          12050          12055          12060          1
2905 Phe Thr Val Thr Ser Leu Asp Glu Asn Gln Glu Tyr Glu Phe Arg Val
E--> 2906 2065          12070          12075          12080
2907 Cys Ala Gln Asn Gln Val Gly Ile Gly Arg Pro Ala Glu Leu Lys Glu
2908          12085          12090          12095
2909 Ala Ile Lys Pro Lys Glu Ile Leu Glu Pro Glu Ile Asp Leu Asp
2910          12100          12105          12110
2911 Ala Ser Met Arg Lys Leu Val Ile Val Arg Ala Gly Cys Pro Ile Arg
2912          12115          12120          12125
2913 Leu Phe Ala Ile Val Arg Gly Arg Pro Ala Pro Lys Val Thr Trp Arg
E--> 2914          12130          12135          12140          1
2915 Lys Val Gly Ile Asp Asn Val Val Arg Lys Gly Gln Val Asp Leu Val
E--> 2916 2145          12150          12155          12160
2917 Asp Thr Met Ala Phe Leu Val Ile Pro Asn Ser Thr Arg Asp Asp Ser
2918          12165          12170          12175
2919 Gly Lys Tyr Ser Leu Thr Leu Val Asn Pro Ala Gly Glu Lys Ala Val
2920          12180          12185          12190
2921 Phe Val Asn Val Arg Val Leu Asp Thr Pro Gly Pro Val Ser Asp Leu
2922          12195          12200          12205
2923 Lys Val Ser Asp Val Thr Lys Thr Ser Cys His Val Ser Trp Ala Pro
E--> 2924          12210          12215          12220          1
2925 Pro Glu Asn Asp Gly Gly Ser Gln Val Thr His Tyr Ile Val Glu Lys
E--> 2926 2225          12230          12235          12240
2927 Arg Glu Ala Asp Arg Lys Thr Trp Ser Thr Val Thr Pro Glu Val Lys
2928          12245          12250          12255
2929 Lys Thr Ser Phe His Val Thr Asn Leu Val Pro Gly Asn Glu Tyr Tyr
2930          12260          12265          12270
2931 Phe Arg Val Thr Ala Val Asn Glu Tyr Gly Pro Gly Val Pro Thr Asp
2932          12275          12280          12285
2933 Val Pro Lys Pro Val Leu Ala Ser Asp Pro Leu Ser Glu Pro Asp Pro
E--> 2934          12290          12295          12300          1
2935 Pro Arg Lys Leu Glu Ala Thr Glu Met Thr Lys Asn Ser Ala Thr Leu
E--> 2936 2305          12310          12315          12320
2937 Ala Trp Leu Pro Pro Leu Arg Asp Gly Gly Ala Lys Ile Asp Gly Tyr
2938          12325          12330          12335
2939 Ile Ile Ser Tyr Arg Glu Glu Glu Gln Pro Ala Asp Arg Trp Thr Glu
2940          12340          12345          12350
2941 Tyr Ser Val Val Lys Asp Leu Ser Leu Val Val Thr Gly Leu Lys Glu
2942          12355          12360          12365
2943 Gly Lys Lys Tyr Lys Phe Arg Val Ala Ala Arg Asn Ala Val Gly Val

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Input Set : A:\00786.381002.SEQLIST.TXT  
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E--> 2944      12370              12375              12380              1
      2945 Ser Leu Pro Arg Glu Ala Glu Gly Val Tyr Glu Ala Lys Glu Gln Leu
E--> 2946 2385              12390              12395              12400
      2947 Leu Pro Pro Lys Ile Leu Met Pro Glu Gln Ile Thr Ile Lys Ala Gly
      2948              12405              12410              12415
      2949 Lys Lys Leu Arg Ile Glu Ala His Val Tyr Gly Lys Pro His Pro Thr
      2950              12420              12425              12430
      2951 Cys Lys Trp Lys Lys Gly Glu Asp Glu Val Val Thr Ser Ser His Leu
      2952              12435              12440              12445
      2953 Ala Val His Lys Ala Asp Ser Ser Ser Ile Leu Ile Ile Lys Asp Val
E--> 2954 12450              12455              12460              1
      2955 Thr Arg Lys Asp Ser Gly Tyr Tyr Ser Leu Thr Ala Glu Asn Ser Ser
E--> 2956 2465              12470              12475              12480
      2957 Gly Thr Asp Thr Gln Lys Ile Lys Val Val Val Met Asp Ala Pro Gly
      2958              12485              12490              12495
      2959 Pro Pro Gln Pro Pro Phe Asp Ile Ser Asp Ile Asp Ala Asp Ala Cys
      2960              12500              12505              12510
      2961 Ser Leu Ser Trp His Ile Pro Leu Glu Asp Gly Gly Ser Asn Ile Thr
      2962              12515              12520              12525
      2963 Asn Tyr Ile Val Glu Lys Cys Asp Val Ser Arg Gly Asp Trp Val Thr
E--> 2964 12530              12535              12540              1
      2965 Ala Leu Ala Ser Val Thr Lys Thr Ser Cys Arg Val Gly Lys Leu Ile
E--> 2966 2545              12550              12555              12560
      2967 Pro Gly Glu Glu Tyr Ile Phe Arg Val Arg Ala Glu Asn Arg Phe Gly
      2968              12565              12570              12575
      2969 Ile Ser Glu Pro Leu Thr Ser Pro Lys Met Val Ala Gln Phe Pro Phe
      2970              12580              12585              12590
      2971 Gly Val Pro Ser Glu Pro Lys Asn Ala Arg Val Thr Lys Val Asn Lys
      2972              12595              12600              12605
      2973 Asp Cys Ile Phe Val Ala Trp Asp Arg Pro Asp Ser Asp Gly Gly Ser
E--> 2974 12610              12615              12620              1
      2975 Pro Ile Ile Gly Tyr Leu Ile Glu Arg Lys Glu Arg Asn Ser Leu Leu
E--> 2976 2625              12630              12635              12640
      2977 Trp Val Lys Ala Asn Asp Thr Leu Val Arg Ser Thr Glu Tyr Pro Cys
      2978              12645              12650              12655
      2979 Ala Gly Leu Val Glu Gly Leu Glu Tyr Ser Phe Arg Ile Tyr Ala Leu
      2980              12660              12665              12670
      2981 Asn Lys Ala Gly Ser Ser Pro Pro Ser Lys Pro Thr Glu Tyr Val Thr
      2982              12675              12680              12685
      2983 Ala Arg Met Pro Val Asp Pro Pro Gly Lys Pro Glu Val Ile Asp Val
E--> 2984 12690              12695              12700              1
      2985 Thr Lys Ser Thr Val Ser Leu Ile Trp Ala Arg Pro Lys His Asp Gly
E--> 2986 2705              12710              12715              12720
      2987 Gly Ser Lys Ile Ile Gly Tyr Phe Val Glu Ala Cys Lys Leu Pro Gly
      2988              12725              12730              12735
      2989 Asp Lys Trp Val Arg Cys Asn Thr Ala Pro His Gln Ile Pro Gln Glu
      2990              12740              12745              12750
      2991 Glu Tyr Thr Ala Thr Gly Leu Glu Glu Lys Ala Gln Tyr Gln Phe Arg
      2992              12755              12760              12765

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```

2993 Ala Ile Ala Arg Thr Ala Val Asn Ile Ser Pro Pro Ser Glu Pro Ser
E--> 2994 12770 12775 12780 1 1
2995 Asp Pro Val Thr Ile Leu Ala Glu Asn Val Pro Pro Arg Ile Asp Leu
E--> 2996 2785 12790 12795 12800
2997 Ser Val Ala Met Lys Ser Leu Leu Thr Val Lys Ala Gly Thr Asn Val
2998 12805 12810 12815
2999 Cys Leu Asp Ala Thr Val Phe Gly Lys Pro Met Pro Thr Val Ser Trp
3000 12820 12825 12830
3001 Lys Lys Asp Gly Thr Leu Leu Lys Pro Ala Glu Gly Ile Lys Met Ala
3002 12835 12840 12845
3003 Met Gln Arg Asn Leu Cys Thr Leu Glu Leu Phe Ser Val Asn Arg Lys
E--> 3004 12850 12855 12860 1
3005 Asp Ser Gly Asp Tyr Thr Ile Thr Ala Glu Asn Ser Ser Gly Ser Lys
E--> 3006 2865 12870 12875 12880
3007 Ser Ala Thr Ile Lys Leu Lys Val Leu Asp Lys Pro Gly Pro Pro Ala
3008 12885 12890 12895
3009 Ser Val Lys Ile Asn Lys Met Tyr Ser Asp Arg Ala Met Leu Ser Trp
3010 12900 12905 12910
3011 Glu Pro Pro Leu Glu Asp Gly Gly Ser Glu Ile Thr Asn Tyr Ile Val
3012 12915 12920 12925
3013 Asp Lys Arg Glu Thr Ser Arg Pro Asn Trp Ala Gln Val Ser Ala Thr
E--> 3014 12930 12935 12940 1
3015 Val Pro Ile Thr Ser Cys Ser Val Glu Lys Leu Ile Glu Gly His Glu
E--> 3016 2945 12950 12955 12960
3017 Tyr Gln Phe Arg Ile Cys Ala Glu Asn Lys Tyr Gly Val Gly Asp Pro
3018 12965 12970 12975
3019 Val Phe Thr Glu Pro Ala Ile Ala Lys Asn Pro Tyr Asp Pro Pro Gly
3020 12980 12985 12990
3021 Arg Cys Asp Pro Pro Val Ile Ser Asn Ile Thr Lys Asp His Met Thr
3022 12995 13000 13005
3023 Val Ser Trp Lys Pro Pro Ala Asp Asp Gly Gly Ser Pro Ile Thr Gly
E--> 3024 13010 13015 13020 1
3025 Tyr Leu Leu Glu Lys Arg Glu Thr Gln Ala Val Asn Trp Thr Lys Val
E--> 3026 3025 13030 13035 13040
3027 Asn Arg Lys Pro Ile Ile Glu Arg Thr Leu Lys Ala Thr Gly Leu Gln
3028 13045 13050 13055
3029 Glu Gly Thr Glu Tyr Glu Phe Arg Val Thr Ala Ile Asn Lys Ala Gly
3030 13060 13065 13070
3031 Pro Gly Lys Pro Ser Asp Ala Ser Lys Ala Ala Tyr Ala Arg Asp Pro
3032 13075 13080 13085
3033 Gln Tyr Pro Pro Ala Pro Pro Ala Phe Pro Lys Val Tyr Asp Thr Thr
E--> 3034 13090 13095 13100 1
3035 Arg Ser Ser Val Ser Leu Ser Trp Gly Lys Pro Ala Tyr Asp Gly Gly
E--> 3036 3105 13110 13115 13120
3037 Ser Pro Ile Ile Gly Tyr Leu Val Glu Val Lys Arg Ala Asp Ser Asp
3038 13125 13130 13135
3039 Asn Trp Val Arg Cys Asn Leu Pro Gln Asn Leu Gln Lys Thr Arg Phe
3040 13140 13145 13150
3041 Glu Val Thr Gly Leu Met Glu Asp Thr Gln Tyr Gln Phe Arg Val Tyr

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```

3042      13155      13160      13165
3043 Ala Val Asn Lys Ile Gly Tyr Ser Asp Pro Ser Asp Val Pro Asp Lys
E--> 3044      13170      13175      13180      1
3045 His Tyr Pro Lys Asp Ile Leu Ile Pro Pro Glu Gly Glu His Asp Ala
E--> 3046 3185      13190      13195      13200
3047 Asp Leu Arg Lys Thr Leu Ile Leu Arg Ala Gly Val Thr Met Arg Leu
3048      13205      13210      13215
3049 Tyr Val Pro Val Lys Gly Arg Pro Pro Pro Lys Ile Thr Trp Ser Lys
3050      13220      13225      13230
3051 Pro Asn Val Asn Leu Arg Asp Arg Ile Gly Leu Asp Ile Lys Ser Thr
3052      13235      13240      13245
3053 Asp Phe Asp Thr Phe Leu Arg Cys Glu Asn Val Asn Lys Tyr Asp Ala
E--> 3054      13250      13255      13260      1
3055 Gly Lys Tyr Ile Leu Thr Leu Glu Asn Ser Cys Gly Lys Lys Glu Tyr
E--> 3056 3265      13270      13275      13280
3057 Thr Ile Val Val Lys Val Leu Asp Thr Pro Gly Pro Pro Ile Asn Val
3058      13285      13290      13295
3059 Thr Val Lys Glu Ile Ser Lys Asp Ser Ala Tyr Val Thr Trp Glu Pro
3060      13300      13305      13310
3061 Pro Ile Ile Asp Gly Gly Ser Pro Ile Ile Asn Tyr Val Val Gln Lys
3062      13315      13320      13325
3063 Arg Asp Ala Glu Arg Lys Ser Trp Ser Thr Val Thr Thr Glu Cys Ser
E--> 3064      13330      13335      13340      1
3065 Lys Thr Ser Phe Arg Val Pro Asn Leu Glu Glu Gly Lys Ser Tyr Phe
E--> 3066 3345      13350      13355      13360
3067 Phe Arg Val Phe Ala Glu Asn Glu Tyr Gly Ile Gly Asp Pro Gly Glu
3068      13365      13370      13375
3069 Thr Arg Asp Ala Val Lys Ala Ser Gln Thr Pro Gly Pro Val Val Asp
3070      13380      13385      13390
3071 Leu Lys Val Arg Ser Val Ser Lys Ser Ser Cys Ser Ile Gly Trp Lys
3072      13395      13400      13405
3073 Lys Pro His Ser Asp Gly Gly Ser Arg Ile Ile Gly Tyr Val Val Asp
E--> 3074      13410      13415      13420      1
3075 Phe Leu Thr Glu Glu Asn Lys Trp Gln Arg Val Met Lys Ser Leu Ser
E--> 3076 3425      13430      13435      13440
3077 Leu Gln Tyr Ser Ala Lys Asp Leu Thr Glu Gly Lys Glu Tyr Thr Phe
3078      13445      13450      13455
3079 Arg Val Ser Ala Glu Asn Glu Asn Gly Glu Gly Thr Pro Ser Glu Ile
3080      13460      13465      13470
3081 Thr Val Val Ala Arg Asp Asp Val Val Ala Pro Asp Leu Asp Leu Lys
3082      13475      13480      13485
3083 Gly Leu Pro Asp Leu Cys Tyr Leu Ala Lys Glu Asn Ser Asn Phe Arg
E--> 3084      13490      13495      13500      1
3085 Leu Lys Ile Pro Ile Lys Gly Lys Pro Ala Pro Ser Val Ser Trp Lys
E--> 3086 3505      13510      13515      13520
3087 Lys Gly Glu Asp Pro Leu Ala Thr Asp Thr Arg Val Ser Val Glu Ser
3088      13525      13530      13535
3089 Ser Ala Val Asn Thr Thr Leu Ile Val Tyr Asp Cys Gln Lys Ser Asp
3090      13540      13545      13550

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```

3091 Ala Gly Lys Tyr Thr Ile Thr Leu Lys Asn Val Ala Gly Thr Lys Glu
3092      13555      13560      13565
3093 Gly Thr Ile Ser Ile Lys Val Val Gly Lys Pro Gly Ile Pro Thr Gly
E--> 3094      13570      13575      13580      1
3095 Pro Ile Lys Phe Asp Glu Val Thr Ala Glu Ala Met Thr Leu Lys Trp
E--> 3096 3585      13590      13595      13600
3097 Ala Pro Pro Lys Asp Asp Gly Gly Ser Glu Ile Thr Asn Tyr Ile Leu
3098      13605      13610      13615
3099 Glu Lys Arg Asp Ser Val Asn Asn Lys Trp Val Thr Cys Ala Ser Ala
3100      13620      13625      13630
3101 Val Gln Lys Thr Thr Phe Arg Val Thr Arg Leu His Glu Gly Met Glu
3102      13635      13640      13645
3103 Tyr Thr Phe Arg Val Ser Ala Glu Asn Lys Tyr Gly Val Gly Glu Gly
E--> 3104      13650      13655      13660      1
3105 Leu Lys Ser Glu Pro Ile Val Ala Arg His Pro Phe Asp Val Pro Asp
E--> 3106 3665      13670      13675      13680
3107 Ala Pro Pro Pro Pro Asn Ile Val Asp Val Arg His Asp Ser Val Ser
3108      13685      13690      13695
3109 Leu Thr Trp Thr Asp Pro Lys Lys Thr Gly Gly Ser Pro Ile Thr Gly
3110      13700      13705      13710
3111 Tyr His Leu Glu Phe Lys Glu Arg Asn Ser Leu Leu Trp Lys Arg Ala
3112      13715      13720      13725
3113 Asn Lys Thr Pro Ile Arg Met Arg Asp Phe Lys Val Thr Gly Leu Thr
E--> 3114      13730      13735      13740      1
3115 Glu Gly Leu Glu Tyr Glu Phe Arg Val Met Ala Ile Asn Leu Ala Gly
E--> 3116 3745      13750      13755      13760
3117 Val Gly Lys Pro Ser Leu Pro Ser Glu Pro Val Val Ala Leu Asp Pro
3118      13765      13770      13775
3119 Ile Asp Pro Pro Gly Lys Pro Glu Val Ile Asn Ile Thr Arg Asn Ser
3120      13780      13785      13790
3121 Val Thr Leu Ile Trp Thr Glu Pro Lys Tyr Asp Gly Gly His Lys Leu
3122      13795      13800      13805
3123 Thr Gly Tyr Ile Val Glu Lys Arg Asp Leu Pro Ser Lys Ser Trp Met
E--> 3124      13810      13815      13820      1
3125 Lys Ala Asn His Val Asn Val Pro Glu Cys Ala Phe Thr Val Thr Asp
E--> 3126 3825      13830      13835      13840
3127 Leu Val Glu Gly Gly Lys Tyr Glu Phe Arg Ile Arg Ala Lys Asn Thr
3128      13845      13850      13855
3129 Ala Gly Ala Ile Ser Ala Pro Ser Glu Ser Thr Glu Thr Ile Ile Cys
3130      13860      13865      13870
3131 Lys Asp Glu Tyr Glu Ala Pro Thr Ile Val Leu Asp Pro Thr Ile Lys
3132      13875      13880      13885
3133 Asp Gly Leu Thr Ile Lys Ala Gly Asp Thr Ile Val Leu Asn Ala Ile
E--> 3134      13890      13895      13900      1
3135 Ser Ile Leu Gly Lys Pro Leu Pro Lys Ser Ser Trp Ser Lys Ala Gly
E--> 3136 3905      13910      13915      13920
3137 Lys Asp Ile Arg Pro Ser Asp Ile Thr Gln Ile Thr Ser Thr Pro Thr
3138      13925      13930      13935
3139 Ser Ser Met Leu Thr Ile Lys Tyr Ala Thr Arg Lys Asp Ala Gly Glu

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```

3140          13940          13945          13950
3141 Tyr Thr Ile Thr Ala Thr Asn Pro Phe Gly Thr Lys Val Glu His Val
3142          13955          13960          13965
3143 Lys Val Thr Val Leu Asp Val Pro Gly Pro Pro Gly Pro Val Glu Ile
E--> 3144 13970 13975 13980 1
3145 Ser Asn Val Ser Ala Glu Lys Ala Thr Leu Thr Trp Thr Pro Pro Leu
E--> 3146 3985 13990 13995 14000
3147 Glu Asp Gly Gly Ser Pro Ile Lys Ser Tyr Ile Leu Glu Lys Arg Glu
3148          14005          14010          14015
3149 Thr Ser Arg Leu Leu Trp Thr Val Val Ser Glu Asp Ile Gln Ser Cys
3150          14020          14025          14030
3151 Arg His Val Ala Thr Lys Leu Ile Gln Gly Asn Glu Tyr Ile Phe Arg
3152          14035          14040          14045
3153 Val Ser Ala Val Asn His Tyr Gly Lys Gly Glu Pro Val Gln Ser Glu
E--> 3154 14050 14055 14060 1
3155 Pro Val Lys Met Val Asp Arg Phe Gly Pro Pro Gly Pro Pro Glu Lys
E--> 3156 4065 14070 14075 14080
3157 Pro Glu Val Ser Asn Val Thr Lys Asn Thr Ala Thr Val Ser Trp Lys
3158          14085          14090          14095
3159 Arg Pro Val Asp Asp Gly Gly Ser Glu Ile Thr Gly Tyr His Val Glu
3160          14100          14105          14110
3161 Arg Arg Glu Lys Lys Ser Leu Arg Trp Val Arg Ala Ile Lys Thr Pro
3162          14115          14120          14125
3163 Val Ser Asp Leu Arg Cys Lys Val Thr Gly Leu Gln Glu Gly Ser Thr
E--> 3164 14130 14135 14140 1
3165 Tyr Glu Phe Arg Val Ser Ala Glu Asn Arg Ala Gly Ile Gly Pro Pro
E--> 3166 4145 14150 14155 14160
3167 Ser Glu Ala Ser Asp Ser Val Leu Met Lys Asp Ala Ala Tyr Pro Pro
3168          14165          14170          14175
3169 Gly Pro Pro Ser Asn Pro His Val Thr Asp Thr Thr Lys Lys Ser Ala
3170          14180          14185          14190
3171 Ser Leu Ala Trp Gly Lys Pro His Tyr Asp Gly Gly Leu Glu Ile Thr
3172          14195          14200          14205
3173 Gly Tyr Val Val Glu His Gln Lys Val Gly Asp Glu Ala Trp Ile Lys
E--> 3174 14210 14215 14220 1
3175 Asp Thr Thr Gly Thr Ala Leu Arg Ile Thr Gln Phe Val Val Pro Asp
E--> 3176 4225 14230 14235 14240
3177 Leu Gln Thr Lys Glu Lys Tyr Asn Phe Arg Ile Ser Ala Ile Asn Asp
3178          14245          14250          14255
3179 Ala Gly Val Gly Glu Pro Ala Val Ile Pro Asp Val Glu Ile Val Glu
3180          14260          14265          14270
3181 Arg Glu Met Ala Pro Asp Phe Glu Leu Asp Ala Glu Leu Arg Arg Thr
3182          14275          14280          14285
3183 Leu Val Val Arg Ala Gly Leu Ser Ile Arg Ile Phe Val Pro Ile Lys
E--> 3184 14290 14295 14300 1
3185 Gly Arg Pro Ala Pro Glu Val Thr Trp Thr Lys Asp Asn Ile Asn Leu
E--> 3186 4305 14310 14315 14320
3187 Lys Asn Arg Ala Asn Ile Glu Asn Thr Glu Ser Phe Thr Leu Leu Ile
3188          14325          14330          14335

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3189 Ile Pro Glu Cys Asn Arg Tyr Asp Thr Gly Lys Phe Val Met Thr Ile
3190      14340      14345      14350
3191 Glu Asn Pro Ala Gly Lys Lys Ser Gly Phe Val Asn Val Arg Val Leu
3192      14355      14360      14365
3193 Asp Thr Pro Gly Pro Val Leu Asn Leu Arg Pro Thr Asp Ile Thr Lys
E--> 3194 14370      14375      14380      1
3195 Asp Ser Val Thr Leu His Trp Asp Leu Pro Leu Ile Asp Gly Gly Ser
E--> 3196 4385      14390      14395      14400
3197 Arg Ile Thr Asn Tyr Ile Val Glu Lys Arg Glu Ala Thr Arg Lys Ser
3198      14405      14410      14415
3199 Tyr Ser Thr Ala Thr Thr Lys Cys His Lys Cys Thr Tyr Lys Val Thr
3200      14420      14425      14430
3201 Gly Leu Ser Glu Gly Cys Glu Tyr Phe Phe Arg Val Met Ala Glu Asn
3202      14435      14440      14445
3203 Glu Tyr Gly Ile Gly Glu Pro Thr Glu Thr Thr Glu Pro Val Lys Ala
E--> 3204 14450      14455      14460      1
3205 Ser Glu Ala Pro Ser Pro Pro Asp Ser Leu Asn Ile Met Asp Ile Thr
E--> 3206 4465      14470      14475      14480
3207 Lys Ser Thr Val Ser Leu Ala Trp Pro Lys Pro Lys His Asp Gly Gly
3208      14485      14490      14495
3209 Ser Lys Ile Thr Gly Tyr Val Ile Glu Ala Gln Arg Lys Gly Ser Asp
3210      14500      14505      14510
3211 Gln Trp Thr His Ile Thr Thr Val Lys Gly Leu Glu Cys Val Val Arg
3212      14515      14520      14525
3213 Asn Leu Thr Glu Gly Glu Tyr Thr Phe Gln Val Met Ala Val Asn
E--> 3214 14530      14535      14540      1
3215 Ser Ala Gly Arg Ser Ala Pro Arg Glu Ser Arg Pro Val Ile Val Lys
E--> 3216 4545      14550      14555      14560
3217 Glu Gln Thr Met Leu Pro Glu Leu Asp Leu Arg Gly Ile Tyr Gln Lys
3218      14565      14570      14575
3219 Leu Val Ile Ala Lys Ala Gly Asp Asn Ile Lys Val Glu Ile Pro Val
3220      14580      14585      14590
3221 Leu Gly Arg Pro Lys Pro Thr Val Thr Trp Lys Lys Gly Asp Gln Ile
3222      14595      14600      14605
3223 Leu Lys Glu Thr Gln Arg Val Asn Phe Glu Thr Thr Ala Thr Ser Thr
E--> 3224 14610      14615      14620      1
3225 Ile Leu Asn Ile Asn Glu Cys Val Arg Ser Asp Ser Gly Pro Tyr Pro
E--> 3226 4625      14630      14635      14640
3227 Leu Thr Ala Arg Asn Ile Val Gly Glu Val Gly Asp Val Ile Thr Ile
3228      14645      14650      14655
3229 Gln Val His Asp Ile Pro Gly Pro Pro Thr Gly Pro Ile Lys Phe Asp
3230      14660      14665      14670
3231 Glu Val Ser Ser Asp Phe Val Thr Phe Ser Trp Asp Pro Pro Glu Asn
3232      14675      14680      14685
3233 Asp Gly Gly Val Pro Ile Ser Asn Tyr Val Val Glu Met Arg Gln Thr
E--> 3234 14690      14695      14700      1
3235 Asp Ser Thr Thr Trp Val Glu Leu Ala Thr Thr Val Ile Arg Thr Thr
E--> 3236 4705      14710      14715      14720
3237 Tyr Lys Ala Thr Arg Leu Thr Thr Gly Leu Glu Tyr Gln Phe Arg Val

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3238          14725          14730          14735
3239 Lys Ala Gln Asn Arg Tyr Gly Val Gly Pro Gly Ile Thr Ser Ala Trp
3240          14740          14745          14750
3241 Ile Val Ala Asn Tyr Pro Phe Lys Val Pro Gly Pro Gly Thr Pro
3242          14755          14760          14765
3243 Gln Val Thr Ala Val Thr Lys Asp Ser Met Thr Ile Ser Trp His Glu
E--> 3244          14770          14775          14780          1
3245 Pro Leu Ser Asp Gly Gly Ser Pro Ile Leu Gly Tyr His Val Glu Arg
E--> 3246 4785          14790          14795          14800
3247 Lys Glu Arg Asn Gly Ile Leu Trp Gln Thr Val Ser Lys Ala Leu Val
3248          14805          14810          14815
3249 Pro Gly Asn Ile Phe Lys Ser Ser Gly Leu Thr Asp Gly Ile Ala Tyr
3250          14820          14825          14830
3251 Glu Phe Arg Val Ile Ala Glu Asn Met Ala Gly Lys Ser Lys Pro Ser
3252          14835          14840          14845
3253 Lys Pro Ser Glu Pro Met Leu Ala Leu Asp Pro Ile Asp Pro Pro Gly
E--> 3254          14850          14855          14860          1
3255 Lys Pro Val Pro Leu Asn Ile Thr Arg His Thr Val Thr Leu Lys Trp
E--> 3256 4865          14870          14875          14880
3257 Ala Lys Pro Glu Tyr Thr Gly Gly Phe Lys Ile Thr Ser Tyr Ile Val
3258          14885          14890          14895
3259 Glu Lys Arg Asp Leu Pro Asn Gly Arg Trp Leu Lys Ala Asn Phe Ser
3260          14900          14905          14910
3261 Asn Ile Leu Glu Asn Glu Phe Thr Val Ser Gly Leu Thr Glu Asp Ala
3262          14915          14920          14925
3263 Ala Tyr Glu Phe Arg Val Ile Ala Lys Asn Ala Ala Gly Ala Ile Ser
E--> 3264          14930          14935          14940          1
3265 Pro Pro Ser Glu Pro Ser Asp Ala Ile Thr Cys Arg Asp Asp Val Glu
E--> 3266 4945          14950          14955          14960
3267 Ala Pro Lys Ile Lys Val Asp Val Lys Phe Lys Asp Thr Val Ile Leu
3268          14965          14970          14975
3269 Lys Ala Gly Glu Ala Phe Arg Leu Glu Ala Asp Val Ser Gly Arg Pro
3270          14980          14985          14990
3271 Pro Pro Thr Met Glu Trp Ser Lys Asp Gly Lys Glu Leu Glu Gly Thr
3272          14995          15000          15005
3273 Ala Lys Leu Glu Ile Lys Ile Ala Asp Phe Ser Thr Asn Leu Val Asn
E--> 3274          15010          15015          15020          1
3275 Lys Asp Ser Thr Arg Arg Asp Ser Gly Ala Tyr Thr Leu Thr Ala Thr
E--> 3276 5025          15030          15035          15040
3277 Asn Pro Gly Gly Phe Ala Lys His Ile Phe Asn Val Lys Val Leu Asp
3278          15045          15050          15055
3279 Arg Pro Gly Pro Pro Glu Gly Pro Leu Ala Val Thr Glu Val Thr Ser
3280          15060          15065          15070
3281 Glu Lys Cys Val Leu Ser Trp Phe Pro Pro Leu Asp Asp Gly Gly Ala
3282          15075          15080          15085
3283 Lys Ile Asp His Tyr Ile Val Gln Lys Arg Glu Thr Ser Arg Leu Ala
E--> 3284          15090          15095          15100          1
3285 Trp Thr Asn Val Ala Ser Glu Val Gln Val Thr Lys Leu Lys Val Thr
E--> 3286 5105          15110          15115          15120

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3287 Lys Leu Leu Lys Gly Asn Glu Tyr Ile Phe Arg Val Met Ala Val Asn
3288             15125             15130             15135
3289 Lys Tyr Gly Val Gly Glu Pro Leu Glu Ser Glu Pro Val Leu Ala Val
3290             15140             15145             15150
3291 Asn Pro Tyr Gly Pro Pro Asp Pro Pro Lys Asn Pro Glu Val Thr Thr
3292             15155             15160             15165
3293 Ile Thr Lys Asp Ser Met Val Val Cys Trp Gly His Pro Asp Ser Asp
E--> 3294 15170             15175             15180             1
3295 Gly Gly Ser Glu Ile Ile Asn Tyr Ile Val Glu Arg Arg Asp Lys Ala
E--> 3296 5185             15190             15195             15200
3297 Gly Gln Arg Trp Ile Lys Cys Asn Lys Lys Thr Leu Thr Asp Leu Arg
3298             15205             15210             15215
3299 Tyr Lys Val Ser Gly Leu Thr Glu Gly His Glu Tyr Glu Phe Arg Ile
3300             15220             15225             15230
3301 Met Ala Glu Asn Ala Ala Gly Ile Ser Ala Pro Ser Pro Thr Ser Pro
3302             15235             15240             15245
3303 Phe Tyr Lys Ala Cys Asp Thr Val Phe Lys Pro Gly Pro Pro Gly Asn
E--> 3304 15250             15255             15260             1
3305 Pro Arg Val Leu Asp Thr Ser Arg Ser Ser Ile Ser Ile Ala Trp Asn
E--> 3306 5265             15270             15275             15280
3307 Lys Pro Ile Tyr Asp Gly Gly Ser Glu Ile Thr Gly Tyr Met Val Glu
3308             15285             15290             15295
3309 Ile Ala Leu Pro Glu Glu Asp Glu Trp Gln Ile Val Thr Pro Pro Ala
3310             15300             15305             15310
3311 Gly Leu Lys Ala Thr Ser Tyr Thr Ile Thr Gly Leu Thr Glu Asn Gln
3312             15315             15320             15325
3313 Glu Tyr Lys Ile Arg Ile Tyr Ala Met Asn Ser Glu Gly Leu Gly Glu
E--> 3314 15330             15335             15340             1
3315 Pro Ala Leu Val Pro Gly Thr Pro Lys Ala Glu Asp Arg Met Leu Pro
E--> 3316 5345             15350             15355             15360
3317 Pro Glu Ile Glu Leu Asp Ala Asp Leu Arg Lys Val Val Thr Ile Arg
3318             15365             15370             15375
3319 Ala Cys Cys Thr Leu Arg Leu Phe Val Pro Ile Lys Gly Arg Pro Asp
3320             15380             15385             15390
3321 Pro Glu Val Lys Trp Ala Arg Asp His Gly Glu Ser Leu Asp Lys Ala
3322             15395             15400             15405
3323 Ser Ile Glu Ser Ala Ser Ser Tyr Thr Leu Leu Ile Val Gly Asn Val
E--> 3324 15410             15415             15420             1
3325 Asn Arg Phe Asp Ser Gly Lys Tyr Ile Leu Thr Val Glu Asn Ser Ser
E--> 3326 5425             15430             15435             15440
3327 Gly Ser Lys Ser Ala Phe Val Asn Val Arg Val Leu Asp Thr Pro Gly
3328             15445             15450             15455
3329 Pro Pro Gln Asp Leu Lys Val Lys Glu Val Thr Lys Thr Ser Val Thr
3330             15460             15465             15470
3331 Leu Thr Trp Asp Pro Pro Leu Leu Asp Gly Gly Ser Lys Ile Lys Asn
3332             15475             15480             15485
3333 Tyr Ile Val Glu Lys Arg Glu Ser Thr Arg Lys Ala Tyr Ser Thr Val
E--> 3334 15490             15495             15500             1
3335 Ala Thr Asn Cys His Lys Thr Ser Trp Lys Val Asp Gln Leu Gln Glu

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E--> 3336 5505                      15510                      15515                      15520
      3337 Gly Cys Ser Tyr Tyr Phe Arg Val Leu Ala Glu Asn Glu Tyr Gly Ile
      3338                      15525                      15530                      15535
      3339 Gly Leu Pro Ala Glu Thr Ala Glu Ser Val Lys Ala Ser Glu Arg Pro
      3340                      15540                      15545                      15550
      3341 Leu Pro Pro Gly Lys Ile Thr Leu Met Asp Val Thr Arg Asn Ser Val
      3342                      15555                      15560                      15565
      3343 Ser Leu Ser Trp Glu Lys Pro Glu His Asp Gly Gly Ser Arg Ile Leu
E--> 3344                      15570                      15575                      15580                      1
      3345 Gly Tyr Ile Val Glu Met Gln Thr Lys Gly Ser Asp Lys Trp Ala Thr
E--> 3346 5585                      15590                      15595                      15600
      3347 Cys Ala Thr Val Lys Val Thr Glu Ala Thr Ile Thr Gly Leu Ile Gln
      3348                      15605                      15610                      15615
      3349 Gly Glu Glu Tyr Ser Phe Arg Val Ser Ala Gln Asn Glu Lys Gly Ile
      3350                      15620                      15625                      15630
      3351 Ser Asp Pro Arg Gln Leu Ser Val Pro Val Ile Ala Lys Asp Leu Val
      3352                      15635                      15640                      15645
      3353 Ile Pro Pro Ala Phe Lys Leu Leu Phe Asn Thr Phe Thr Val Leu Ala
E--> 3354                      15650                      15655                      15660                      1
      3355 Gly Glu Asp Leu Lys Val Asp Val Pro Phe Ile Gly Arg Pro Thr Pro
E--> 3356 5665                      15670                      15675                      15680
      3357 Ala Val Thr Trp His Lys Asp Asn Val Pro Leu Lys Gln Thr Thr Arg
      3358                      15685                      15690                      15695
      3359 Val Asn Ala Glu Ser Thr Glu Asn Asn Ser Leu Leu Thr Ile Lys Asp
      3360                      15700                      15705                      15710
      3361 Ala Cys Arg Glu Asp Val Gly His Tyr Val Val Lys Leu Thr Asn Ser
      3362                      15715                      15720                      15725
      3363 Ala Gly Glu Ala Ile Glu Thr Leu Asn Val Ile Val Leu Asp Lys Pro
E--> 3364                      15730                      15735                      15740                      1
      3365 Gly Pro Pro Thr Gly Pro Val Lys Met Asp Glu Val Thr Ala Asp Ser
E--> 3366 5745                      15750                      15755                      15760
      3367 Ile Thr Leu Ser Trp Gly Pro Pro Lys Tyr Asp Gly Gly Ser Ser Ile
      3368                      15765                      15770                      15775
      3369 Asn Asn Tyr Ile Val Glu Lys Arg Asp Thr Ser Thr Thr Trp Gln
      3370                      15780                      15785                      15790
      3371 Ile Val Ser Ala Thr Val Ala Arg Thr Thr Ile Lys Ala Cys Arg Leu
      3372                      15795                      15800                      15805
      3373 Lys Thr Gly Cys Glu Tyr Gln Phe Arg Ile Ala Ala Glu Asn Arg Tyr
E--> 3374                      15810                      15815                      15820                      1
      3375 Gly Lys Ser Thr Tyr Leu Asn Ser Glu Pro Thr Val Ala Gln Tyr Pro
E--> 3376 5825                      15830                      15835                      15840
      3377 Phe Lys Val Pro Gly Pro Pro Gly Thr Pro Val Val Thr Leu Ser Ser
      3378                      15845                      15850                      15855
      3379 Arg Asp Ser Met Glu Val Gln Trp Asn Glu Pro Ile Ser Asp Gly Gly
      3380                      15860                      15865                      15870
      3381 Ser Arg Val Ile Gly Tyr His Leu Glu Arg Lys Glu Arg Asn Ser Ile
      3382                      15875                      15880                      15885
      3383 Leu Trp Val Lys Leu Asn Lys Thr Pro Ile Pro Gln Thr Lys Phe Lys
E--> 3384                      15890                      15895                      15900                      1

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3385 Thr Thr Gly Leu Glu Glu Gly Val Glu Tyr Glu Phe Arg Val Ser Ala
E--> 3386 5905 15910 15915 15920
3387 Glu Asn Ile Val Gly Ile Gly Lys Pro Ser Lys Val Ser Glu Cys Tyr
3388 15925 15930 15935
3389 Val Ala Arg Asp Pro Cys Asp Pro Pro Gly Arg Pro Glu Ala Ile Ile
3390 15940 15945 15950
3391 Val Thr Arg Asn Ser Val Thr Leu Gln Trp Lys Lys Pro Thr Tyr Asp
3392 15955 15960 15965
3393 Gly Gly Ser Lys Ile Thr Gly Tyr Ile Val Glu Lys Lys Glu Leu Pro
E--> 3394 15970 15975 15980 1
3395 Glu Gly Arg Trp Met Lys Ala Ser Phe Thr Asn Ile Ile Asp Thr His
E--> 3396 5985 15990 15995 16000
3397 Phe Glu Val Thr Gly Leu Val Glu Asp His Arg Tyr Glu Phe Arg Val
3398 16005 16010 16015
3399 Ile Ala Arg Asn Ala Ala Gly Val Phe Ser Glu Pro Ser Glu Ser Thr
3400 16020 16025 16030
3401 Gly Ala Ile Thr Ala Arg Asp Glu Val Asp Pro Pro Arg Ile Ser Met
3402 16035 16040 16045
3403 Asp Pro Lys Tyr Lys Asp Thr Ile Val Val His Ala Gly Glu Ser Phe
E--> 3404 16050 16055 16060 1
3405 Lys Val Asp Ala Asp Ile Tyr Gly Lys Pro Ile Pro Thr Ile Gln Trp
E--> 3406 6065 16070 16075 16080
3407 Ile Lys Gly Asp Gln Glu Leu Ser Asn Thr Ala Arg Leu Glu Ile Lys
3408 16085 16090 16095
3409 Ser Thr Asp Phe Ala Thr Ser Leu Ser Val Lys Asp Ala Val Arg Val
3410 16100 16105 16110
3411 Asp Ser Gly Asn Tyr Ile Leu Lys Ala Lys Asn Val Ala Gly Glu Arg
3412 16115 16120 16125
3413 Ser Val Thr Val Asn Val Lys Val Leu Asp Arg Pro Gly Pro Pro Glu
E--> 3414 16130 16135 16140 1
3415 Gly Pro Val Val Ile Ser Gly Val Thr Ala Glu Lys Cys Thr Leu Ala
E--> 3416 6145 16150 16155 16160
3417 Trp Lys Pro Pro Leu Gln Asp Gly Gly Ser Asp Ile Ile Asn Tyr Ile
3418 16165 16170 16175
3419 Val Glu Arg Arg Glu Thr Ser Arg Leu Val Trp Thr Val Val Asp Ala
3420 16180 16185 16190
3421 Asn Val Gln Thr Leu Ser Cys Lys Val Thr Lys Leu Leu Glu Gly Asn
3422 16195 16200 16205
3423 Glu Tyr Thr Phe Arg Ile Met Ala Val Asn Lys Tyr Gly Val Gly Glu
E--> 3424 16210 16215 16220 1
3425 Pro Leu Glu Ser Glu Pro Val Val Ala Lys Asn Pro Phe Val Val Pro
E--> 3426 6225 16230 16235 16240
3427 Asp Ala Pro Lys Ala Pro Glu Val Thr Thr Val Thr Lys Asp Ser Met
3428 16245 16250 16255
3429 Ile Val Val Trp Glu Arg Pro Ala Ser Asp Gly Gly Ser Glu Ile Leu
3430 16260 16265 16270
3431 Gly Tyr Val Leu Glu Lys Arg Asp Lys Glu Gly Ile Arg Trp Thr Arg
3432 16275 16280 16285
3433 Cys His Lys Arg Leu Ile Gly Glu Leu Arg Leu Arg Val Thr Gly Leu

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```

E--> 3434      16290      16295      16300      1
3435 Ile Glu Asn His Asp Tyr Glu Phe Arg Val Ser Ala Glu Asn Ala Ala
E--> 3436 6305      16310      16315      16320
3437 Gly Leu Ser Glu Pro Ser Pro Pro Ser Ala Tyr Gln Lys Ala Cys Asp
3438      16325      16330      16335
3439 Pro Ile Tyr Lys Pro Gly Pro Pro Asn Asn Pro Lys Val Ile Asp Ile
3440      16340      16345      16350
3441 Thr Arg Ser Ser Val Phe Leu Ser Trp Ser Lys Pro Ile Tyr Asp Gly
3442      16355      16360      16365
3443 Gly Cys Glu Ile Gln Gly Tyr Ile Val Glu Lys Cys Asp Val Asn Val
E--> 3444      16370      16375      16380      1
3445 Gly Glu Trp Thr Met Cys Thr Pro Pro Thr Gly Ile Asn Lys Thr Asn
E--> 3446 6385      16390      16395      16400
3447 Ile Glu Val Glu Lys Leu Leu Glu Lys His Glu Tyr Asn Phe Arg Ile
3448      16405      16410      16415
3449 Cys Ala Ile Asn Lys Ala Gly Val Gly Glu His Ala Asp Val Pro Gly
3450      16420      16425      16430
3451 Pro Ile Ile Val Glu Glu Lys Leu Glu Ala Pro Asp Ile Asp Leu Asp
3452      16435      16440      16445
3453 Leu Glu Leu Arg Lys Ile Ile Asn Ile Arg Ala Gly Gly Ser Leu Arg
E--> 3454      16450      16455      16460      1
3455 Leu Phe Val Pro Ile Lys Gly Arg Pro Thr Pro Glu Val Lys Trp Gly
E--> 3456 6465      16470      16475      16480
3457 Lys Val Asp Gly Glu Ile Arg Asp Ala Ala Ile Ile Asp Val Thr Ser
3458      16485      16490      16495
3459 Ser Phe Thr Ser Leu Val Leu Asp Asn Val Asn Arg Tyr Asp Ser Gly
3460      16500      16505      16510
3461 Lys Tyr Thr Leu Thr Leu Glu Asn Ser Ser Gly Thr Lys Ser Ala Phe
3462      16515      16520      16525
3463 Val Thr Val Arg Val Leu Asp Thr Pro Ser Pro Pro Val Asn Leu Lys
E--> 3464      16530      16535      16540      1
3465 Val Thr Glu Ile Thr Lys Asp Ser Val Ser Ile Thr Trp Glu Pro Pro
E--> 3466 6545      16550      16555      16560
3467 Leu Leu Asp Gly Gly Ser Lys Ile Lys Asn Tyr Ile Val Glu Lys Arg
3468      16565      16570      16575
3469 Glu Ala Thr Arg Lys Ser Tyr Ala Ala Val Val Thr Asn Cys His Lys
3470      16580      16585      16590
3471 Asn Ser Trp Lys Ile Asp Gln Leu Gln Glu Gly Cys Ser Tyr Tyr Phe
3472      16595      16600      16605
3473 Arg Val Thr Ala Glu Asn Glu Tyr Gly Ile Gly Leu Pro Ala Gln Thr
E--> 3474      16610      16615      16620      1
3475 Ala Asp Pro Ile Lys Val Ala Glu Val Pro Gln Pro Pro Gly Lys Ile
E--> 3476 6625      16630      16635      16640
3477 Thr Val Asp Asp Val Thr Arg Asn Ser Val Ser Leu Ser Trp Thr Lys
3478      16645      16650      16655
3479 Pro Glu His Asp Gly Gly Ser Lys Ile Ile Gln Tyr Ile Val Glu Met
3480      16660      16665      16670
3481 Gln Ala Lys His Ser Glu Lys Trp Ser Glu Cys Ala Arg Val Lys Ser
3482      16675      16680      16685

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```

3483 Leu Gln Ala Val Ile Thr Asn Leu Thr Gln Gly Glu Tyr Leu Phe
E--> 3484 16690 16695 16700 1
3485 Arg Val Val Ala Val Asn Glu Lys Gly Arg Ser Asp Pro Arg Ser Leu
E--> 3486 6705 16710 16715 16720
3487 Ala Val Pro Ile Val Ala Lys Asp Leu Val Ile Glu Pro Asp Val Lys
3488 16725 16730 16735
3489 Pro Ala Phe-Ser Ser Tyr Ser Val Gln Val Gly Gln Asp Leu Lys Ile
3490 16740 16745 16750
3491 Glu Val Pro Ile Ser Gly Arg Pro Lys Pro Thr Ile Thr Trp Thr Lys
3492 16755 16760 16765
3493 Asp Gly Leu Pro Leu Lys Gln Thr Thr Arg Ile Asn Val Thr Asp Ser
E--> 3494 16770 16775 16780 1
3495 Leu Asp Leu Thr Thr Leu Ser Ile Lys Glu Thr His Lys Asp Asp Gly
E--> 3496 6785 16790 16795 16800
3497 Gly Gln Tyr Gly Ile Thr Val Ala Asn Val Val Gly Gln Lys Thr Ala
3498 16805 16810 16815
3499 Ser Ile Glu Ile Val Thr Leu Asp Lys Pro Asp Pro Pro Lys Gly Pro
3500 16820 16825 16830
3501 Val Lys Phe Asp Asp Val Ser Ala Glu Ser Ile Thr Leu Ser Trp Asn
3502 16835 16840 16845
3503 Pro Pro Leu Tyr Thr Gly Gly Cys Gln Ile Thr Asn Tyr Ile Val Gln
E--> 3504 16850 16855 16860 1
3505 Lys Arg Asp Thr Thr Thr Val Trp Asp Val Val Ser Ala Thr Val
E--> 3506 6865 16870 16875 16880
3507 Ala Arg Thr Thr Leu Lys Val Thr Lys Leu Lys Thr Gly Thr Glu Tyr
3508 16885 16890 16895
3509 Gln Phe Arg Ile Phe Ala Glu Asn Arg Tyr Gly Gln Ser Phe Ala Leu
3510 16900 16905 16910
3511 Glu Ser Asp Pro Ile Val Ala Gln Tyr Pro Tyr Lys Glu Pro Gly Pro
3512 16915 16920 16925
3513 Pro Gly Thr Pro Phe Ala Thr Ala Ile Ser Lys Asp Ser Met Val Ile
E--> 3514 16930 16935 16940 1
3515 Glu Trp His Glu Pro Val Asn Asn Gly Gly Ser Pro Val Ile Gly Tyr
E--> 3516 6945 16950 16955 16960
3517 His Leu Glu Arg Lys Glu Arg Asn Ser Ile Leu Trp Thr Lys Val Asn
3518 16965 16970 16975
3519 Lys Thr Ile Ile His Asp Thr Gln Phe Lys Ala Gln Asn Leu Glu Glu
3520 16980 16985 16990
3521 Gly Ile Glu Tyr Glu Phe Arg Val Tyr Ala Glu Asn Ile Val Gly Val
3522 16995 17000 17005
3523 Gly Lys Ala Ser Lys Asn Ser Glu Cys Tyr Val Ala Arg Asp Pro Cys
E--> 3524 17010 17015 17020 1
3525 Asp Pro Pro Gly Thr Pro Glu Pro Ile Met Val Lys Arg Asn Glu Ile
E--> 3526 7025 17030 17035 17040
3527 Thr Leu Gln Trp Thr Lys Pro Val Tyr Asp Gly Gly Ser Met Ile Thr
3528 17045 17050 17055
3529 Gly Tyr Ile Val Glu Lys Arg Asp Leu Pro Asp Gly Arg Trp Met Lys
3530 17060 17065 17070
3531 Ala Ser Phe Thr Asn Val Ile Glu Thr Gln Phe Thr Val Ser Gly Leu

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3532          17075          17080          17085
3533 Thr Glu Asp Gln Arg Tyr Glu Phe Arg Val Ile Ala Lys Asn Ala Ala
E--> 3534 17090          17095          17100          1
3535 Gly Ala Ile Ser Lys Pro Ser Asp Ser Thr Gly Pro Ile Thr Ala Lys
E--> 3536 7105          17110          17115          17120
3537 Asp Glu Val Glu Leu Pro Arg Ile Ser Met Asp Pro Lys Phe Arg Asp
3538          17125          17130          17135
3539 Thr Ile Val Val Asn Ala Gly Glu Thr Phe Arg Leu Glu Ala Asp Val
3540          17140          17145          17150
3541 His Gly Lys Pro Leu Pro Thr Ile Glu Trp Leu Arg Gly Asp Lys Glu
3542          17155          17160          17165
3543 Ile Glu Glu Ser Ala Arg Cys Glu Ile Lys Asn Thr Asp Phe Lys Ala
E--> 3544 17170          17175          17180          1
3545 Leu Leu Ile Val Lys Asp Ala Ile Arg Ile Asp Gly Gly Gln Tyr Ile
E--> 3546 7185          17190          17195          17200
3547 Leu Arg Ala Ser Asn Val Ala Gly Ser Lys Ser Phe Pro Val Asn Val
3548          17205          17210          17215
3549 Lys Val Leu Asp Arg Pro Gly Pro Pro Glu Gly Pro Val Glu Val Thr
3550          17220          17225          17230
3551 Gly Val Thr Ser Glu Lys Cys Ser Leu Thr Trp Ser Pro Pro Leu Glu
3552          17235          17240          17245
3553 Asp Gly Gly Ser Asp Ile Ser His Tyr Val Val Glu Lys Arg Glu Thr
E--> 3554 17250          17255          17260          1
3555 Ser Arg Leu Ala Trp Thr Val Val Ala Ser Glu Val Val Thr Asn Ser
E--> 3556 7265          17270          17275          17280
3557 Leu Lys Val Thr Lys Leu Leu Glu Gly Asn Glu Tyr Val Phe Arg Ile
3558          17285          17290          17295
3559 Met Ala Val Asn Lys Tyr Gly Val Gly Glu Pro Leu Glu Ser Ala Pro
3560          17300          17305          17310
3561 Val Leu Met Lys Asn Pro Phe Val Leu Pro Gly Pro Pro Lys Ser Leu
3562          17315          17320          17325
3563 Glu Val Thr Asn Ile Ala Lys Asp Ser Met Thr Val Cys Trp Asn Arg
E--> 3564 17330          17335          17340          1
3565 Pro Asp Ser Asp Gly Gly Ser Glu Ile Ile Gly Tyr Ile Val Glu Lys
E--> 3566 7345          17350          17355          17360
3567 Arg Asp Arg Ser Gly Ile Arg Trp Ile Lys Cys Asn Lys Arg Arg Ile
3568          17365          17370          17375
3569 Thr Asp Leu Arg Leu Arg Val Thr Gly Leu Thr Glu Asp His Glu Tyr
3570          17380          17385          17390
3571 Glu Phe Arg Val Ser Ala Glu Asn Ala Ala Gly Val Gly Glu Pro Ser
3572          17395          17400          17405
3573 Pro Ala Thr Val Tyr Tyr Lys Ala Cys Asp Pro Val Phe Lys Pro Gly
E--> 3574 17410          17415          17420          1
3575 Pro Pro Thr Asn Ala His Ile Val Asp Thr Thr Lys Asn Ser Ile Thr
E--> 3576 7425          17430          17435          17440
3577 Leu Ala Trp Gly Lys Pro Ile Tyr Asp Gly Gly Ser Glu Ile Leu Gly
3578          17445          17450          17455
3579 Tyr Val Val Glu Ile Cys Lys Ala Asp Glu Glu Glu Trp Gln Ile Val
3580          17460          17465          17470

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3581 Thr Pro Gln Thr Gly Leu Arg Val Thr Arg Phe Glu Ile Ser Lys Leu
3582      17475      17480      17485
3583 Thr Glu His Gln Glu Tyr Lys Ile Arg Val Cys Ala Leu Asn Lys Val
E--> 3584      17490      17495      17500      1
3585 Gly Leu Gly Glu Ala Thr Ser Val Pro Gly Thr Val Lys Pro Glu Asp
E--> 3586 7505      17510      17515      17520
3587 Lys Leu Glu Ala Pro Glu Leu Asp Leu Asp Ser Glu Leu Arg Lys Gly
3588      17525      17530      17535
3589 Ile Val Val Arg Ala Gly Gly Ser Ala Arg Ile His Ile Pro Phe Lys
3590      17540      17545      17550
3591 Gly Arg Pro Met Pro Glu Ile Thr Trp Ser Arg Glu Glu Gly Glu Phe
3592      17555      17560      17565
3593 Thr Asp Lys Val Gln Ile Glu Lys Gly Val Asn Tyr Thr Gln Leu Ser
E--> 3594      17570      17575      17580      1
3595 Ile Asp Asn Cys Asp Arg Asn Asp Ala Gly Lys Tyr Ile Leu Lys Leu
E--> 3596 7585      17590      17595      17600
3597 Glu Asn Ser Ser Gly Ser Lys Ser Ala Phe Val Thr Val Lys Val Leu
3598      17605      17610      17615
3599 Asp Thr Pro Gly Pro Pro Gln Asn Leu Ala Val Lys Glu Val Arg Lys
3600      17620      17625      17630
3601 Asp Ser Ala Phe Leu Val Trp Glu Pro Pro Ile Ile Asp Gly Gly Ala
3602      17635      17640      17645
3603 Lys Val Lys Asn Tyr Val Ile Asp Lys Arg Glu Ser Thr Arg Lys Ala
E--> 3604      17650      17655      17660      1
3605 Tyr Ala Asn Val Ser Ser Lys Cys Ser Lys Thr Ser Phe Lys Val Glu
E--> 3606 7665      17670      17675      17680
3607 Asn Leu Thr Glu Gly Ala Ile Tyr Tyr Phe Arg Val Met Ala Glu Asn
3608      17685      17690      17695
3609 Glu Phe Gly Val Gly Val Pro Val Glu Thr Val Asp Ala Val Lys Ala
3610      17700      17705      17710
3611 Ala Glu Pro Pro Ser Pro Pro Gly Lys Val Thr Leu Thr Asp Val Ser
3612      17715      17720      17725
3613 Gln Thr Ser Ala Ser Leu Met Trp Glu Lys Pro Glu His Asp Gly Gly
E--> 3614      17730      17735      17740      1
3615 Ser Arg Val Leu Gly Tyr Val Val Glu Met Gln Pro Lys Gly Thr Glu
E--> 3616 7745      17750      17755      17760
3617 Lys Trp Ser Ile Val Ala Glu Ser Lys Val Cys Asn Ala Val Val Thr
3618      17765      17770      17775
3619 Gly Leu Ser Ser Gly Gln Glu Tyr Gln Phe Arg Val Lys Ala Tyr Asn
3620      17780      17785      17790
3621 Glu Lys Gly Lys Ser Asp Pro Arg Val Leu Gly Val Pro Val Ile Ala
3622      17795      17800      17805
3623 Lys Asp Leu Thr Ile Gln Pro Ser Leu Lys Leu Pro Phe Asn Thr Tyr
E--> 3624      17810      17815      17820      1
3625 Ser Ile Gln Ala Gly Glu Asp Leu Lys Ile Glu Ile Pro Val Ile Gly
E--> 3626 7825      17830      17835      17840
3627 Arg Pro Arg Pro Asn Ile Ser Trp Val Lys Asp Gly Glu Pro Leu Lys
3628      17845      17850      17855
3629 Gln Thr Thr Arg Val Asn Val Glu Glu Thr Ala Thr Ser Thr Val Leu

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3630          17860          17865          17870
3631 His Ile Lys Glu Gly Asn Lys Asp Asp Phe Gly Lys Tyr Thr Val Thr
3632          17875          17880          17885
3633 Ala Thr Asn Ser Ala Gly Thr Ala Thr Glu Asn Leu Ser Val Ile Val
E--> 3634 17890 17895 17900 1
3635 Leu Glu Lys Pro Gly Pro Pro Val Gly Pro Val Arg Phe Asp Glu Val
E--> 3636 7905 17910 17915 17920
3637 Ser Ala Asp Phe Val Val Ile Ser Trp Glu Pro Pro Ala Tyr Thr Gly
3638          17925          17930          17935
3639 Gly Cys Gln Ile Ser Asn Tyr Ile Val Glu Lys Arg Asp Thr Thr Thr
3640          17940          17945          17950
3641 Thr Thr Trp His Met Val Ser Ala Thr Val Ala Arg Thr Thr Ile Lys
3642          17955          17960          17965
3643 Ile Thr Lys Leu Lys Thr Gly Thr Glu Tyr Gln Phe Arg Ile Phe Ala
E--> 3644 17970 17975 17980 1
3645 Glu Asn Arg Tyr Gly Lys Ser Ala Pro Leu Asp Ser Lys Ala Val Ile
E--> 3646 7985 17990 17995 18000
3647 Val Gln Tyr Pro Phe Lys Glu Pro Gly Pro Pro Gly Thr Pro Phe Val
3648          18005          18010          18015
3649 Thr Ser Ile Ser Lys Asp Gln Met Leu Val Gln Trp His Glu Pro Val
3650          18020          18025          18030
3651 Asn Asp Gly Gly Thr Lys Ile Ile Gly Tyr His Leu Glu Gln Lys Glu
3652          18035          18040          18045
3653 Lys Asn Ser Ile Leu Trp Val Lys Leu Asn Lys Thr Pro Ile Gln Asp
E--> 3654 18050 18055 18060 1
3655 Thr Lys Phe Lys Thr Thr Gly Leu Asp Glu Gly Leu Glu Tyr Glu Phe
E--> 3656 8065 18070 18075 18080
3657 Lys Val Ser Ala Glu Asn Ile Val Gly Ile Gly Lys Pro Ser Lys Val
3658          18085          18090          18095
3659 Ser Glu Cys Phe Val Ala Arg Asp Pro Cys Asp Pro Pro Gly Arg Pro
3660          18100          18105          18110
3661 Glu Ala Ile Val Ile Thr Arg Asn Asn Val Thr Leu Lys Trp Lys Lys
3662          18115          18120          18125
3663 Pro Ala Tyr Asp Gly Gly Ser Lys Ile Thr Gly Tyr Ile Val Glu Lys
E--> 3664 18130 18135 18140 1
3665 Lys Asp Leu Pro Asp Gly Arg Trp Met Lys Ala Ser Phe Thr Asn Val
E--> 3666 8145 18150 18155 18160
3667 Leu Glu Thr Glu Phe Thr Val Ser Gly Leu Val Glu Asp Gln Arg Tyr
3668          18165          18170          18175
3669 Glu Phe Arg Val Ile Ala Arg Asn Ala Ala Gly Asn Phe Ser Glu Pro
3670          18180          18185          18190
3671 Ser Asp Ser Ser Gly Ala Ile Thr Ala Arg Asp Glu Ile Asp Ala Pro
3672          18195          18200          18205
3673 Asn Ala Ser Leu Asp Pro Lys Tyr Lys Asp Val Ile Val Val His Ala
E--> 3674 18210 18215 18220 1
3675 Gly Glu Thr Phe Val Leu Glu Ala Asp Ile Arg Gly Lys Pro Ile Pro
E--> 3676 8225 18230 18235 18240
3677 Asp Val Val Trp Ser Lys Asp Gly Lys Glu Leu Glu Glu Thr Ala Ala
3678          18245          18250          18255

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3679 Arg Met Glu Ile Lys Ser Thr Ile Gln Lys Thr Thr Leu Val Val Lys
3680      18260      18265      18270
3681 Asp Cys Ile Arg Thr Asp Gly Gly Gln Tyr Ile Leu Lys Leu Ser Asn
3682      18275      18280      18285
3683 Val Gly Gly Thr Lys Ser Ile Pro Ile Thr Val Lys Val Leu Asp Arg
E--> 3684      18290      18295      18300      1
3685 Pro Gly Ser Pro Glu Gly Pro Leu Lys Val Thr Gly Val Thr Ala Glu
E--> 3686 8305      18310      18315      18320
3687 Lys Cys Tyr Leu Ala Trp Asn Pro Pro Leu Gln Asp Gly Gly Ala Asn
3688      18325      18330      18335
3689 Ile Ser His Tyr Ile Ile Glu Lys Arg Glu Thr Ser Arg Leu Ser Trp
3690      18340      18345      18350
3691 Thr Gln Val Ser Thr Glu Val Gln Ala Leu Asn Tyr Lys Val Thr Lys
3692      18355      18360      18365
3693 Leu Leu Pro Gly Asn Glu Tyr Ile Phe Arg Val Met Ala Val Asn Lys
E--> 3694      18370      18375      18380      1
3695 Tyr Gly Ile Gly Glu Pro Leu Glu Ser Gly Pro Val Thr Ala Cys Asn
E--> 3696 8385      18390      18395      18400
3697 Pro Tyr Lys Pro Pro Gly Pro Pro Ser Thr Pro Glu Val Ser Ala Ile
3698      18405      18410      18415
3699 Thr Lys Asp Ser Met Val Val Thr Trp Ala Arg Pro Val Asp Asp Gly
3700      18420      18425      18430
3701 Gly Thr Glu Ile Glu Gly Tyr Ile Leu Glu Lys Arg Asp Lys Glu Gly
3702      18435      18440      18445
3703 Val Arg Trp Thr Lys Cys Asn Lys Lys Thr Leu Thr Asp Leu Arg Leu
E--> 3704      18450      18455      18460      1
3705 Arg Val Thr Gly Leu Thr Glu Gly His Ser Tyr Glu Phe Arg Val Ala
E--> 3706 8465      18470      18475      18480
3707 Ala Glu Asn Ala Ala Gly Val Gly Glu Pro Ser Glu Pro Ser Val Phe
3708      18485      18490      18495
3709 Tyr Arg Ala Cys Asp Ala Leu Tyr Pro Pro Gly Pro Pro Ser Asn Pro
3710      18500      18505      18510
3711 Lys Val Thr Asp Thr Ser Arg Ser Ser Val Ser Leu Ala Trp Ser Lys
3712      18515      18520      18525
3713 Pro Ile Tyr Asp Gly Gly Ala Pro Val Lys Gly Tyr Val Val Glu Val
E--> 3714      18530      18535      18540      1
3715 Lys Glu Ala Ala Ala Asp Glu Trp Thr Thr Cys Thr Pro Pro Thr Gly
E--> 3716 8545      18550      18555      18560
3717 Leu Gln Gly Lys Gln Phe Thr Val Thr Lys Leu Lys Glu Asn Thr Glu
3718      18565      18570      18575
3719 Tyr Asn Phe Arg Ile Cys Ala Ile Asn Ser Glu Gly Val Gly Glu Pro
3720      18580      18585      18590
3721 Ala Thr Leu Pro Gly Ser Val Val Ala Glu Glu Arg Ile Glu Pro Pro
3722      18595      18600      18605
3723 Glu Ile Glu Leu Asp Ala Asp Leu Arg Lys Val Val Val Leu Arg Ala
E--> 3724      18610      18615      18620      1
3725 Ser Ala Thr Leu Arg Leu Phe Val Thr Ile Lys Gly Arg Pro Glu Pro
E--> 3726 8625      18630      18635      18640
3727 Glu Val Lys Trp Glu Lys Ala Glu Gly Ile Leu Thr Asp Arg Ala Gln

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3728          18645          18650          18655
3729 Ile Glu Val Thr Ser Ser Phe Thr Met Leu Val Ile Asp Asn Val Thr
3730          18660          18665          18670
3731 Arg Phe Asp Ser Gly Arg Tyr Asn Leu Thr Leu Glu Asn Asn Ser Gly
3732          18675          18680          18685
3733 Ser Lys Thr Ala Phe Val Asn Val Arg Val Leu Asp Ser Pro Ser Ala
E--> 3734 18690          18695          18700          1
3735 Pro Val Asn Leu Thr Ile Arg Glu Val Lys Lys Asp Ser Val Thr Leu
E--> 3736 8705          18710          18715          18720
3737 Ser Trp Glu Pro Pro Leu Ile Asp Gly Gly Ala Lys Ile Thr Asn Tyr
3738          18725          18730          18735
3739 Ile Val Glu Lys Arg Glu Thr Thr Arg Lys Ala Tyr Ala Thr Ile Thr
3740          18740          18745          18750
3741 Asn Asn Cys Thr Lys Thr Thr Phe Arg Ile Glu Asn Leu Gln Glu Gly
3742          18755          18760          18765
3743 Cys Ser Tyr Tyr Phe Arg Val Leu Ala Ser Asn Glu Tyr Gly Ile Gly
E--> 3744 18770          18775          18780          1
3745 Leu Pro Ala Glu Thr Thr Glu Pro Val Lys Val Ser Glu Pro Pro Leu
E--> 3746 8785          18790          18795          18800
3747 Pro Pro Gly Arg Val Thr Leu Val Asp Val Thr Arg Asn Thr Ala Thr
3748          18805          18810          18815
3749 Ile Lys Trp Glu Lys Pro Glu Ser Asp Gly Gly Ser Lys Ile Thr Gly
3750          18820          18825          18830
3751 Tyr Val Val Glu Met Gln Thr Lys Gly Ser Glu Lys Trp Ser Thr Cys
3752          18835          18840          18845
3753 Thr Gln Val Lys Thr Leu Glu Ala Thr Ile Ser Gly Leu Thr Ala Gly
E--> 3754 18850          18855          18860          1
3755 Glu Glu Tyr Val Phe Arg Val Ala Ala Val Asn Glu Lys Gly Arg Ser
E--> 3756 8865          18870          18875          18880
3757 Asp Pro Arg Gln Leu Gly Val Pro Val Ile Ala Arg Asp Ile Glu Ile
3758          18885          18890          18895
3759 Lys Pro Ser Val Glu Leu Pro Phe His Thr Phe Asn Val Lys Ala Arg
3760          18900          18905          18910
3761 Glu Gln Leu Lys Ile Asp Val Pro Phe Lys Gly Arg Pro Gln Ala Thr
3762          18915          18920          18925
3763 Val Asn Trp Arg Lys Asp Gly Gln Thr Leu Lys Glu Thr Thr Arg Val
E--> 3764 18930          18935          18940          1
3765 Asn Val Ser Ser Ser Lys Thr Val Thr Ser Leu Ser Ile Lys Glu Ala
E--> 3766 8945          18950          18955          18960
3767 Ser Lys Glu Asp Val Gly Thr Tyr Glu Leu Cys Val Ser Asn Ser Ala
3768          18965          18970          18975
3769 Gly Ser Ile Thr Val Pro Ile Thr Ile Ile Val Leu Asp Arg Pro Gly
3770          18980          18985          18990
3771 Pro Pro Gly Pro Ile Arg Ile Asp Glu Val Ser Cys Asp Ser Ile Thr
3772          18995          19000          19005
3773 Ile Ser Trp Asn Pro Pro Glu Tyr Asp Gly Gly Cys Gln Ile Ser Asn
E--> 3774 19010          19015          19020          1
3775 Tyr Ile Val Glu Lys Lys Glu Thr Thr Ser Thr Thr Trp His Ile Val
E--> 3776 9025          19030          19035          19040

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3777 Ser Gln Ala Val Ala Arg Thr Ser Ile Lys Ile Val Arg Leu Thr Thr
3778                               19045                               19050                               19055
3779 Gly Ser Glu Tyr Gln Phe Arg Val Cys Ala Glu Asn Arg Tyr Gly Lys
3780                               19060                               19065                               19070
3781 Ser Ser Tyr Ser Glu Ser Ser Ala Val Val Ala Glu Tyr Pro Phe Ser
3782                               19075                               19080                               19085
3783 Pro Pro Gly Pro Pro Gly Thr Pro Lys Val Val His Ala Thr Lys Ser
E--> 3784 19090                               19095                               19100                               1
3785 Thr Met Leu Val Thr Trp Gln Val Pro Val Asn Asp Gly Gly Ser Arg
E--> 3786 9105                               19110                               19115                               19120
3787 Val Ile Gly Tyr His Leu Glu Tyr Lys Glu Arg Ser Ser Ile Leu Trp
3788                               19125                               19130                               19135
3789 Ser Lys Ala Asn Lys Ile Leu Ile Ala Asp Thr Gln Val Lys Val Ser
3790                               19140                               19145                               19150
3791 Gly Leu Asp Glu Gly Leu Met Tyr Glu Tyr Arg Val Tyr Ala Glu Asn
3792                               19155                               19160                               19165
3793 Ile Ala Gly Ile Gly Lys Cys Ser Lys Ser Cys Glu Pro Val Pro Ala
E--> 3794 19170                               19175                               19180                               1
3795 Arg Asp Pro Cys Asp Pro Pro Gly Gln Pro Glu Val Thr Asn Ile Thr
E--> 3796 9185                               19190                               19195                               19200
3797 Arg Lys Ser Val Ser Leu Lys Trp Ser Lys Pro His Tyr Asp Gly Gly
3798                               19205                               19210                               19215
3799 Ala Lys Ile Thr Gly Tyr Ile Val Glu Arg Arg Glu Leu Pro Asp Gly
3800                               19220                               19225                               19230
3801 Arg Trp Leu Lys Cys Asn Tyr Thr Asn Ile Gln Glu Thr Tyr Phe Glu
3802                               19235                               19240                               19245
3803 Val Thr Glu Leu Thr Glu Asp Gln Arg Tyr Glu Phe Arg Val Phe Ala
E--> 3804 19250                               19255                               19260                               1
3805 Arg Asn Ala Ala Asp Ser Val Ser Glu Pro Ser Glu Ser Thr Gly Pro
E--> 3806 9265                               19270                               19275                               19280
3807 Ile Ile Val Lys Asp Asp Val Glu Pro Pro Arg Val Met Met Asp Val
3808                               19285                               19290                               19295
3809 Lys Phe Arg Asp Val Ile Val Val Lys Ala Gly Glu Val Leu Lys Ile
3810                               19300                               19305                               19310
3811 Asn Ala Asp Ile Ala Gly Arg Pro Leu Pro Val Ile Ser Trp Ala Lys
3812                               19315                               19320                               19325
3813 Asp Gly Ile Glu Ile Glu Glu Arg Ala Arg Thr Glu Ile Ile Ser Thr
E--> 3814 19330                               19335                               19340                               1
3815 Asp Asn His Thr Leu Leu Thr Val Lys Asp Cys Ile Arg Arg Asp Thr
E--> 3816 9345                               19350                               19355                               19360
3817 Gly Gln Tyr Val Leu Thr Leu Lys Asn Val Ala Gly Thr Arg Ser Val
3818                               19365                               19370                               19375
3819 Ala Val Asn Cys Lys Val Leu Asp Lys Pro Gly Pro Pro Ala Gly Pro
3820                               19380                               19385                               19390
3821 Leu Glu Ile Asn Gly Leu Thr Ala Glu Lys Cys Ser Leu Ser Trp Gly
3822                               19395                               19400                               19405
3823 Arg Pro Gln Glu Asp Gly Gly Ala Asp Ile Asp Tyr Tyr His Arg Lys
E--> 3824 19410                               19415                               19420                               1
3825 Lys Arg Glu Thr Ser His Leu Ala Trp Thr Ile Cys Glu Gly Glu Leu

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E--> 3826 9425                      19430                      19435                      19440
3827 Gln Met Thr Ser Cys Lys Val Thr Lys Leu Leu Lys Gly Asn Glu Tyr
3828                      19445                      19450                      19455
3829 Ile Phe Arg Val Thr Gly Val Asn Lys Tyr Gly Val Gly Glu Pro Leu
3830                      19460                      19465                      19470
3831 Glu Ser Val Ala Ile Lys Ala Leu Asp Pro Phe Thr Val Pro Ser Pro
3832                      19475                      19480                      19485
3833 Pro Thr Ser Leu Glu Ile Thr Ser Val Thr Lys Glu Ser Met Thr Leu
E--> 3834 19490                      19495                      19500                      1
3835 Cys Trp Ser Arg Pro Glu Ser Asp Gly Gly Ser Glu Ile Ser Gly Tyr
E--> 3836 9505                      19510                      19515                      19520
3837 Ile Ile Glu Arg Arg Glu Lys Asn Ser Leu Arg Trp Val Arg Val Asn
3838                      19525                      19530                      19535
3839 Lys Lys Pro Val Tyr Asp Leu Arg Val Lys Ser Thr Gly Leu Arg Glu
3840                      19540                      19545                      19550
3841 Gly Cys Glu Tyr Glu Tyr Arg Val Tyr Ala Glu Asn Ala Ala Gly Leu
3842                      19555                      19560                      19565
3843 Ser Leu Pro Ser Glu Thr Ser Pro Leu Ile Arg Ala Glu Asp Pro Val
E--> 3844 19570                      19575                      19580                      1
3845 Phe Leu Pro Ser Pro Pro Ser Lys Pro Lys Ile Val Asp Ser Gly Lys
E--> 3846 9585                      19590                      19595                      19600
3847 Thr Thr Ile Thr Ile Ala Trp Val Lys Pro Leu Phe Asp Gly Gly Ala
3848                      19605                      19610                      19615
3849 Pro Ile Thr Gly Tyr Thr Val Glu Tyr Lys Lys Ser Asp Asp Thr Asp
3850                      19620                      19625                      19630
3851 Trp Lys Thr Ser Ile Gln Ser Leu Arg Gly Thr Glu Tyr Thr Ile Ser
3852                      19635                      19640                      19645
3853 Gly Leu Thr Thr Gly Ala Glu Tyr Val Phe Arg Val Lys Ser Val Asn
E--> 3854 19650                      19655                      19660                      1
3855 Lys Val Gly Ala Ser Asp Pro Ser Asp Ser Ser Asp Pro Gln Ile Ala
E--> 3856 9665                      19670                      19675                      19680
3857 Lys Glu Arg Glu Glu Glu Pro Leu Phe Asp Ile Asp Ser Glu Met Arg
3858                      19685                      19690                      19695
3859 Lys Thr Leu Ile Val Lys Ala Gly Ala Ser Phe Thr Met Thr Val Pro
3860                      19700                      19705                      19710
3861 Phe Arg Gly Arg Pro Val Pro Asn Val Leu Trp Ser Lys Pro Asp Thr
3862                      19715                      19720                      19725
3863 Asp Leu Arg Thr Arg Ala Tyr Val Asp Thr Thr Asp Ser Arg Thr Ser
E--> 3864 19730                      19735                      19740                      1
3865 Leu Thr Ile Glu Asn Ala Asn Arg Asn Asp Ser Gly Lys Tyr Thr Leu
E--> 3866 9745                      19750                      19755                      19760
3867 Thr Ile Gln Asn Val Leu Ser Ala Ala Ser Leu Thr Leu Val Val Lys
3868                      19765                      19770                      19775
3869 Val Leu Asp Thr Pro Gly Pro Pro Thr Asn Ile Thr Val Gln Asp Val
3870                      19780                      19785                      19790
3871 Thr Lys Glu Ser Ala Val Leu Ser Trp Asp Val Pro Glu Asn Asp Gly
3872                      19795                      19800                      19805
3873 Gly Ala Pro Val Lys Asn Tyr His Ile Glu Lys Arg Glu Ala Ser Lys
E--> 3874 19810                      19815                      19820                      1

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3875 Lys Ala Trp Val Ser Val Thr Asn Asn Cys Asn Arg Leu Ser Tyr Lys
E--> 3876 9825      19830      19835      19840
3877 Val Thr Asn Leu Gln Glu Gly Ala Ile Tyr Tyr Phe Arg Val Ser Gly
3878      19845      19850      19855
3879 Glu Asn Glu Phe Gly Val Gly Ile Pro Ala Glu Thr Lys Glu Gly Val
3880      19860      19865      19870
3881 Lys Ile Thr Glu Lys Pro Ser Pro Pro Glu Lys Leu Gly Val Thr Ser
3882      19875      19880      19885
3883 Ile Ser Lys Asp Ser Val Ser Leu Thr Trp Leu Lys Pro Glu His Asp
E--> 3884 19890      19895      19900      1
3885 Gly Gly Ser Arg Ile Val His Tyr Val Val Glu Ala Leu Glu Lys Gly
E--> 3886 9905      19910      19915      19920
3887 Gln Lys Asn Trp Val Lys Cys Ala Val Ala Lys Ser Thr His His Val
3888      19925      19930      19935
3889 Val Ser Gly Leu Arg Glu Asn Ser Glu Tyr Phe Phe Arg Val Phe Ala
3890      19940      19945      19950
3891 Glu Asn Gln Ala Gly Leu Ser Asp Pro Arg Glu Leu Leu Leu Pro Val
3892      19955      19960      19965
3893 Leu Ile Lys Glu Gln Leu Glu Pro Pro Glu Ile Asp Met Lys Asn Phe
E--> 3894 19970      19975      19980      1
3895 Pro Ser His Thr Val Tyr Val Arg Ala Gly Ser Asn Leu Lys Val Asp
E--> 3896 9985      19990      19995      20000
3897 Ile Pro Ile Ser Gly Lys Pro Leu Pro Lys Val Thr Leu Ser Arg Asp
3898      20005      20010      20015
3899 Gly Val Pro Leu Lys Ala Thr Met Arg Phe Asn Thr Glu Ile Thr Ala
3900      20020      20025      20030
3901 Glu Asn Leu Thr Ile Asn Leu Lys Glu Ser Val Thr Ala Asp Ala Gly
3902      20035      20040      20045
3903 Arg Tyr Glu Ile Thr Ala Ala Asn Ser Ser Gly Thr Thr Lys Ala Phe
E--> 3904 20050      20055      20060      2
3905 Ile Asn Ile Val Val Leu Asp Arg Pro Gly Pro Pro Thr Gly Pro Val
E--> 3906 0065      20070      20075      20080
3907 Val Ile Ser Asp Ile Thr Glu Glu Ser Val Thr Leu Lys Trp Glu Pro
3908      20085      20090      20095
3909 Pro Lys Tyr Asp Gly Gly Ser Gln Val Thr Asn Tyr Ile Leu Leu Lys
3910      20100      20105      20110
3911 Arg Glu Thr Ser Thr Ala Val Trp Thr Glu Val Ser Ala Thr Val Ala
3912      20115      20120      20125
3913 Arg Thr Met Met Lys Val Met Lys Leu Thr Thr Gly Glu Glu Tyr Gln
E--> 3914 20130      20135      20140      2
3915 Phe Arg Ile Lys Ala Glu Asn Arg Phe Gly Ile Ser Asp His Ile Asp
E--> 3916 0145      20150      20155      20160
3917 Ser Ala Cys Val Thr Val Lys Leu Pro Tyr Thr Thr Pro Gly Pro Pro
3918      20165      20170      20175
3919 Ser Thr Pro Trp Val Thr Asn Val Thr Arg Glu Ser Ile Thr Val Gly
3920      20180      20185      20190
3921 Trp His Glu Pro Val Ser Asn Gly Gly Ser Ala Val Val Gly Tyr His
3922      20195      20200      20205
3923 Leu Glu Met Lys Asp Arg Asn Ser Ile Leu Trp Gln Lys Ala Asn Lys

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E--> 3924      20210      20215      20220      2
      3925 Leu Val Ile Arg Thr Thr His Phe Lys Val Thr Thr Ile Ser Ala Gly
E--> 3926 0225      20230      20235      20240
      3927 Leu Ile Tyr Glu Phe Arg Val Tyr Ala Glu Asn Ala Ala Gly Val Gly
      3928      20245      20250      20255
      3929 Lys Pro Ser His Pro Ser Glu Pro Val Leu Ala Ile Asp Ala Cys Glu
      3930      20260      20265      20270
      3931 Pro Pro Arg Asn Val Arg Ile Thr Asp Ile Ser Lys Asn Ser Val Ser
      3932      20275      20280      20285
      3933 Leu Ser Trp Gln Gln Pro Ala Phe Asp Gly Gly Ser Lys Ile Thr Gly
E--> 3934      20290      20295      20300      2
      3935 Tyr Ile Val Glu Arg Arg Asp Leu Pro Asp Gly Arg Trp Thr Lys Ala
E--> 3936 0305      20310      20315      20320
      3937 Ser Phe Thr Asn Val Thr Glu Thr Gln Phe Thr Ile Ser Gly Leu Thr
      3938      20325      20330      20335
      3939 Gln Asn Ser Gln Tyr Glu Phe Arg Val Phe Ala Arg Asn Ala Val Gly
      3940      20340      20345      20350
      3941 Ser Ile Ser Asn Pro Ser Glu Val Val Gly Pro Ile Thr Cys Ile Asp
      3942      20355      20360      20365
      3943 Ser Tyr Gly Gly Pro Val Ile Asp Leu Pro Leu Glu Tyr Thr Glu Val
E--> 3944      20370      20375      20380      2
      3945 Val Lys Tyr Arg Ala Gly Thr Ser Val Lys Leu Arg Ala Gly Ile Ser
E--> 3946 0385      20390      20395      20400
      3947 Gly Lys Pro Ala Pro Thr Ile Glu Trp Tyr Lys Asp Asp Lys Glu Leu
      3948      20405      20410      20415
      3949 Gln Thr Asn Ala Leu Val Cys Val Glu Asn Thr Thr Asp Leu Ala Ser
      3950      20420      20425      20430
      3951 Ile Leu Ile Lys Asp Ala Asp Arg Leu Asn Ser Gly Cys Tyr Glu Leu
      3952      20435      20440      20445
      3953 Lys Leu Arg Asn Ala Met Ala Ser Ala Ser Ala Thr Ile Arg Val Gln
E--> 3954      20450      20455      20460      2
      3955 Ile Leu Asp Lys Pro Gly Pro Pro Gly Gly Pro Ile Glu Phe Lys Thr
E--> 3956 0465      20470      20475      20480
      3957 Val Thr Ala Glu Lys Ile Thr Leu Leu Trp Arg Pro Pro Ala Asp Asp
      3958      20485      20490      20495
      3959 Gly Gly Ala Lys Ile Thr His Tyr Ile Val Glu Lys Arg Glu Thr Ser
      3960      20500      20505      20510
      3961 Arg Val Val Trp Ser Met Val Ser Glu His Leu Glu Glu Cys Ile Ile
      3962      20515      20520      20525
      3963 Thr Thr Thr Lys Ile Ile Lys Gly Asn Glu Tyr Ile Phe Arg Val Arg
E--> 3964      20530      20535      20540      2
      3965 Ala Val Asn Lys Tyr Gly Ile Gly Glu Pro Leu Glu Ser Asp Ser Val
E--> 3966 0545      20550      20555      20560
      3967 Val Ala Lys Asn Ala Phe Val Thr Pro Gly Pro Pro Gly Ile Pro Glu
      3968      20565      20570      20575
      3969 Val Thr Lys Ile Thr Lys Asn Ser Met Thr Val Val Trp Ser Arg Pro
      3970      20580      20585      20590
      3971 Ile Ala Asp Gly Gly Ser Asp Ile Ser Gly Tyr Phe Leu Glu Lys Arg
      3972      20595      20600      20605

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3973 Asp Lys Lys Ser Leu Gly Trp Phe Lys Val Leu Lys Glu Thr Ile Arg
E--> 3974 20610 20615 20620 2
3975 Asp Thr Arg Gln Lys Val Thr Gly Leu Thr Glu Asn Ser Asp Tyr Gln
E--> 3976 0625 20630 20635 20640
3977 Tyr Arg Val Cys Ala Val Asn Ala Ala Gly Gln Gly Pro Phe Ser Glu
3978 20645 20650 20655
3979 Pro Ser Glu Phe Tyr Lys Ala Ala Asp Pro Ile Asp Pro Pro Gly Pro
3980 20660 20665 20670
3981 Pro Ala Lys Ile Arg Ile Ala Asp Ser Thr Lys Ser Ser Ile Thr Leu
3982 20675 20680 20685
3983 Gly Trp Ser Lys Pro Val Tyr Asp Gly Gly Ser Ala Val Thr Gly Tyr
E--> 3984 20690 20695 20700 2
3985 Val Val Glu Ile Arg Gln Gly Glu Glu Glu Glu Trp Thr Thr Val Ser
E--> 3986 0705 20710 20715 20720
3987 Thr Lys Gly Glu Val Arg Thr Thr Glu Tyr Val Val Ser Asn Leu Lys
3988 20725 20730 20735
3989 Pro Gly Val Asn Tyr Tyr Phe Arg Val Ser Ala Val Asn Cys Ala Gly
3990 20740 20745 20750
3991 Gln Gly Glu Pro Ile Glu Met Asn Glu Pro Val Gln Ala Lys Asp Ile
3992 20755 20760 20765
3993 Leu Glu Ala Pro Glu Ile Asp Leu Asp Val Ala Leu Arg Thr Ser Val
E--> 3994 20770 20775 20780 2
3995 Ile Ala Lys Ala Gly Glu Asp Val Gln Val Leu Ile Pro Phe Lys Gly
E--> 3996 0785 20790 20795 20800
3997 Arg Pro Pro Pro Thr Val Thr Trp Arg Lys Asp Glu Lys Asn Leu Gly
3998 20805 20810 20815
3999 Ser Asp Ala Arg Tyr Ser Ile Glu Asn Thr Asp Ser Ser Ser Leu Leu
4000 20820 20825 20830
4001 Thr Ile Pro Gln Val Thr Arg Asn Asp Thr Gly Lys Tyr Ile Leu Thr
4002 20835 20840 20845
4003 Ile Glu Asn Gly Val Gly Glu Pro Lys Ser Ser Thr Val Ser Val Lys
E--> 4004 20850 20855 20860 2
4005 Val Leu Asp Thr Pro Ala Ala Cys Gln Lys Leu Gln Val Lys His Val
E--> 4006 0865 20870 20875 20880
4007 Ser Arg Gly Thr Val Thr Leu Leu Trp Asp Pro Pro Leu Ile Asp Gly
4008 20885 20890 20895
4009 Gly Ser Pro Ile Ile Asn Tyr Val Ile Glu Lys Arg Asp Ala Thr Lys
4010 20900 20905 20910
4011 Arg Thr Trp Ser Val Val Ser His Lys Cys Ser Ser Thr Ser Phe Lys
4012 20915 20920 20925
4013 Leu Ile Asp Leu Ser Glu Lys Thr Pro Phe Phe Phe Arg Val Leu Ala
E--> 4014 20930 20935 20940 2
4015 Glu Asn Glu Ile Gly Ile Gly Glu Pro Cys Glu Thr Thr Glu Pro Val
E--> 4016 0945 20950 20955 20960
4017 Lys Ala Ala Glu Val Pro Ala Pro Ile Arg Asp Leu Ser Met Lys Asp
4018 20965 20970 20975
4019 Ser Thr Lys Thr Ser Val Ile Leu Ser Trp Thr Lys Pro Asp Phe Asp
4020 20980 20985 20990
4021 Gly Gly Ser Val Ile Thr Glu Tyr Val Val Glu Arg Lys Gly Lys Gly

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4022      20995      21000      21005
4023 Glu Gln Thr Trp Ser His Ala Gly Ile Ser Lys Thr Cys Glu Ile Glu
E--> 4024      21010      21015      21020      2      2
4025 Val Ser Gln Leu Lys Glu Gln Ser Val Leu Glu Phe Arg Val Phe Ala
E--> 4026 1025      21030      21035      21040
4027 Lys Asn Glu Lys Gly Leu Ser Asp Pro Val Thr Ile Gly Pro Ile Thr
4028      21045      21050      21055
4029 Val Lys Glu Leu Ile Ile Thr Pro Glu Val Asp Leu Ser Asp Ile Pro
4030      21060      21065      21070
4031 Gly Ala Gln Val Thr Val Arg Ile Gly His Asn Val His Leu Glu Leu
4032      21075      21080      21085
4033 Pro Tyr Lys Gly Lys Pro Lys Pro Ser Ile Ser Trp Leu Lys Asp Gly
E--> 4034      21090      21095      21100      2
4035 Leu Pro Leu Lys Glu Ser Glu Phe Val Arg Phe Ser Lys Thr Glu Asn
E--> 4036 1105      21110      21115      21120
4037 Lys Ile Thr Leu Ser Ile Lys Asn Ala Lys Lys Glu His Gly Gly Lys
4038      21125      21130      21135
4039 Tyr Thr Val Ile Leu Asp Asn Ala Val Cys Arg Ile Ala Val Pro Ile
4040      21140      21145      21150
4041 Thr Val Ile Thr Leu Glu Pro Pro Ser Lys Pro Lys Gly Pro Ile Arg
4042      21155      21160      21165
4043 Phe Asp Glu Ile Lys Ala Asp Ser Val Ile Leu Ser Trp Asp Val Pro
E--> 4044      21170      21175      21180      2
4045 Glu Asp Asn Gly Gly Gly Glu Ile Thr Cys Tyr Ser Ile Glu Lys Arg
E--> 4046 1185      21190      21195      21200
4047 Glu Thr Ser Gln Thr Asn Trp Lys Met Val Cys Ser Ser Val Ala Arg
4048      21205      21210      21215
4049 Thr Thr Phe Lys Val Pro Asn Leu Val Lys Asp Ala Glu Tyr Gln Phe
4050      21220      21225      21230
4051 Arg Val Arg Ala Glu Asn Arg Tyr Gly Val Ser Gln Pro Leu Val Ser
4052      21235      21240      21245
4053 Ser Ile Ile Val Ala Lys His Gln Phe Arg Ile Pro Gly Pro Pro Gly
E--> 4054      21250      21255      21260      2
4055 Lys Pro Val Ile Tyr Asn Val Thr Ser Asp Gly Met Ser Leu Thr Trp
E--> 4056 1265      21270      21275      21280
4057 Asp Ala Pro Val Tyr Asp Gly Gly Ser Glu Val Thr Gly Phe His Val
4058      21285      21290      21295
4059 Glu Lys Lys Glu Arg Asn Ser Ile Leu Trp Gln Lys Val Asn Thr Ser
4060      21300      21305      21310
4061 Pro Ile Ser Gly Arg Glu Tyr Arg Ala Thr Gly Leu Val Glu Gly Leu
4062      21315      21320      21325
4063 Asp Tyr Gln Phe Arg Val Tyr Ala Glu Asn Ser Ala Gly Leu Ser Ser
E--> 4064      21330      21335      21340      2
4065 Pro Ser Asp Pro Ser Lys Phe Thr Leu Ala Val Ser Pro Val Asp Pro
E--> 4066 1345      21350      21355      21360
4067 Pro Gly Thr Pro Asp Tyr Ile Asp Val Thr Arg Glu Thr Ile Thr Leu
4068      21365      21370      21375
4069 Lys Trp Asn Pro Leu Arg Asp Gly Gly Ser Lys Ile Val Gly Tyr
4070      21380      21385      21390

```



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```

4071 Ser Ile Glu Lys Arg Gln Gly Asn Glu Arg Trp Val Arg Cys Asn Phe
4072      21395      21400      21405
4073 Thr Asp Val Ser Glu Cys Gln Tyr Thr Val Thr Gly Leu Ser Pro Gly
E--> 4074      21410      21415      21420      2      2
4075 Asp Arg Tyr Glu Phe Arg Ile Ile Ala Arg Asn Ala Val Gly Thr Ile
E--> 4076 1425      21430      21435      21440
4077 Ser Pro Pro Ser Gln Ser Ser Gly Ile Ile Met Thr Arg Asp Glu Asn
4078      21445      21450      21455
4079 Val Pro Pro Ile Val Glu Phe Gly Pro Glu Tyr Phe Asp Gly Leu Ile
4080      21460      21465      21470
4081 Ile Lys Ser Gly Glu Ser Leu Arg Ile Lys Ala Leu Val Gln Gly Arg
4082      21475      21480      21485
4083 Pro Val Pro Arg Val Thr Trp Phe Lys Asp Gly Val Glu Ile Glu Lys
E--> 4084      21490      21495      21500      2
4085 Arg Met Asn Met Glu Ile Thr Asn Val Leu Gly Ser Thr Ser Leu Phe
E--> 4086 1505      21510      21515      21520
4087 Val Arg Asp Ala Thr Arg Asp His Arg Gly Val Tyr Thr Val Glu Ala
4088      21525      21530      21535
4089 Lys Asn Ala Ser Gly Ser Ala Lys Ala Glu Ile Lys Val Lys Val Gln
4090      21540      21545      21550
4091 Asp Thr Pro Gly Lys Val Val Gly Pro Ile Arg Phe Thr Asn Ile Thr
4092      21555      21560      21565
4093 Gly Glu Lys Met Thr Leu Trp Trp Asp Ala Pro Leu Asn Asp Gly Cys
E--> 4094      21570      21575      21580      2
4095 Ala Pro Ile Thr His Tyr Ile Ile Glu Lys Arg Glu Thr Ser Arg Leu
E--> 4096 1585      21590      21595      21600
4097 Ala Trp Ala Leu Ile Glu Asp Lys Cys Glu Ala Gln Ser Tyr Thr Ala
4098      21605      21610      21615
4099 Ile Lys Leu Ile Asn Gly Asn Glu Tyr Gln Phe Arg Val Ser Ala Val
4100      21620      21625      21630
4101 Asn Lys Phe Gly Val Gly Arg Pro Leu Asp Ser Asp Pro Val Val Ala
4102      21635      21640      21645
4103 Gln Ile Gln Tyr Thr Val Pro Asp Ala Pro Gly Ile Pro Glu Pro Ser
E--> 4104      21650      21655      21660      2
4105 Asn Ile Thr Gly Asn Ser Ile Thr Leu Thr Trp Ala Arg Pro Glu Ser
E--> 4106 1665      21670      21675      21680
4107 Asp Gly Gly Ser Glu Ile Gln Gln Tyr Ile Leu Glu Arg Arg Glu Lys
4108      21685      21690      21695
4109 Lys Ser Thr Arg Trp Val Lys Val Ile Ser Lys Arg Pro Ile Ser Glu
4110      21700      21705      21710
4111 Thr Arg Phe Lys Val Thr Gly Leu Thr Glu Gly Asn Glu Tyr Glu Phe
4112      21715      21720      21725
4113 His Val Met Ala Glu Asn Ala Ala Gly Val Gly Pro Ala Ser Gly Ile
E--> 4114      21730      21735      21740      2
4115 Ser Arg Leu Ile Lys Cys Arg Glu Pro Val Asn Pro Pro Gly Pro Pro
E--> 4116 1745      21750      21755      21760
4117 Thr Val Val Lys Val Thr Asp Thr Ser Lys Thr Thr Val Ser Leu Glu
4118      21765      21770      21775
4119 Trp Ser Lys Pro Val Phe Asp Gly Gly Met Glu Ile Ile Gly Tyr Ile

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```

4120          21780          21785          21790
4121 Ile Glu Met Cys Lys Thr Asp Leu Gly Asp Trp His Lys Val Asn Ala
4122          21795          21800          21805
4123 Glu Ala Cys Val Lys Thr Arg Tyr Thr Val Thr Asp Leu Gln Ala Gly
E--> 4124    21810          21815          21820          2
4125 Glu Glu Tyr Lys Phe Arg Val Ser Ala Ile Asn Gly Ala Gly Lys Gly
E--> 4126 1825          21830          21835          21840
4127 Asp Ser Cys Glu Val Thr Gly Thr Ile Lys Ala Val Asp Arg Leu Thr
4128          21845          21850          21855
4129 Ala Pro Glu Leu Asp Ile Asp Ala Asn Phe Lys Gln Thr His Val Val
4130          21860          21865          21870
4131 Arg Ala Gly Ala Ser Ile Arg Leu Phe Ile Ala Tyr Gln Gly Arg Pro
4132          21875          21880          21885
4133 Thr Pro Thr Ala Val Trp Ser Lys Pro Asp Ser Asn Leu Ser Leu Arg
E--> 4134    21890          21895          21900          2
4135 Ala Asp Ile His Thr Thr Asp Ser Phe Ser Thr Leu Thr Val Glu Asn
E--> 4136 1905          21910          21915          21920
4137 Cys Asn Arg Asn Asp Ala Gly Lys Tyr Thr Leu Thr Val Glu Asn Asn
4138          21925          21930          21935
4139 Ser Gly Ser Lys Ser Ile Thr Phe Thr Val Lys Val Leu Asp Thr Pro
4140          21940          21945          21950
4141 Gly Pro Pro Gly Pro Ile Thr Phe Lys Asp Val Thr Arg Gly Ser Ala
4142          21955          21960          21965
4143 Thr Leu Met Trp Asp Ala Pro Leu Leu Asp Gly Gly Ala Arg Ile His
E--> 4144    21970          21975          21980          2
4145 His Tyr Val Val Glu Lys Arg Glu Ala Ser Arg Arg Ser Trp Gln Val
E--> 4146 1985          21990          21995          22000
4147 Ile Ser Glu Lys Cys Thr Arg Gln Ile Phe Lys Val Asn Asp Leu Ala
4148          22005          22010          22015
4149 Glu Gly Val Pro Tyr Tyr Phe Arg Val Ser Ala Val Asn Glu Tyr Gly
4150          22020          22025          22030
4151 Val Gly Glu Pro Tyr Glu Met Pro Glu Pro Ile Val Ala Thr Glu Gln
4152          22035          22040          22045
4153 Pro Ala Pro Pro Arg Arg Leu Asp Val Val Asp Thr Ser Lys Ser Ser
E--> 4154    22050          22055          22060          2
4155 Ala Val Leu Ala Trp Leu Lys Pro Asp His Asp Gly Gly Ser Arg Ile
E--> 4156 2065          22070          22075          22080
4157 Thr Gly Tyr Leu Leu Glu Met Arg Gln Lys Gly Ser Asp Leu Trp Val
4158          22085          22090          22095
4159 Glu Ala Gly His Thr Lys Glu Leu Thr Phe Thr Val Glu Arg Leu Val
4160          22100          22105          22110
4161 Glu Lys Thr Glu Tyr Glu Phe Arg Val Lys Ala Lys Asn Asp Ala Gly
4162          22115          22120          22125
4163 Tyr Ser Glu Pro Arg Glu Ala Phe Ser Ser Val Ile Ile Lys Glu Pro
E--> 4164    22130          22135          22140          2
4165 Gln Ile Glu Pro Thr Ala Asp Leu Thr Gly Ile Thr Asn Gln Leu Ile
E--> 4166 2145          22150          22155          22160
4167 Thr Cys Lys Ala Gly Ser Pro Phe Thr Ile Asp Val Pro Ile Ser Gly
4168          22165          22170          22175

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```

4169 Arg Pro Ala Pro Lys Val Thr Trp Lys Leu Glu Glu Met Arg Leu Lys
4170                22180                22185                22190
4171 Glu Thr Asp Arg Val Ser Ile Thr Thr Thr Lys Asp Arg Thr Thr Leu
4172                22195                22200                22205
4173 Thr Val Lys Asp Ser Met Arg Gly Asp Ser Gly Arg Tyr Phe Leu Thr
E--> 4174    22210                22215                22220                2      2
4175 Leu Glu Asn Thr Ala Gly Val Lys Thr Phe Ser Val Thr Val Val Val
E--> 4176    2225                22230                22235                22240
4177 Ile Gly Arg Pro Gly Pro Val Thr Gly Pro Ile Glu Val Ser Ser Val
4178                22245                22250                22255
4179 Ser Ala Glu Ser Cys Val Leu Ser Trp Gly Glu Pro Lys Asp Gly Gly
4180                22260                22265                22270
4181 Gly Thr Glu Ile Thr Asn Tyr Ile Val Glu Lys Arg Glu Ser Gly Thr
4182                22275                22280                22285
4183 Thr Ala Trp Gln Leu Val Asn Ser Ser Val Lys Arg Thr Gln Ile Lys
E--> 4184    22290                22295                22300                2      2
4185 Val Thr His Leu Thr Lys Tyr Met Glu Tyr Ser Phe Arg Val Ser Ser
E--> 4186    2305                22310                22315                22320
4187 Glu Asn Arg Phe Gly Val Ser Lys Pro Leu Glu Ser Ala Pro Ile Ile
4188                22325                22330                22335
4189 Ala Glu His Pro Phe Val Pro Pro Ser Ala Pro Thr Arg Pro Glu Val
4190                22340                22345                22350
4191 Tyr His Val Ser Ala Asn Ala Met Ser Ile Arg Trp Glu Glu Pro Tyr
4192                22355                22360                22365
4193 His Asp Gly Gly Ser Lys Ile Ile Gly Tyr Trp Val Glu Lys Lys Glu
E--> 4194    22370                22375                22380                2      2
4195 Arg Asn Thr Ile Leu Trp Val Lys Glu Asn Lys Val Pro Cys Leu Glu
E--> 4196    2385                22390                22395                22400
4197 Cys Asn Tyr Lys Val Thr Gly Leu Val Glu Gly Leu Glu Tyr Gln Phe
4198                22405                22410                22415
4199 Arg Thr Tyr Ala Leu Asn Ala Ala Gly Val Ser Lys Ala Ser Glu Ala
4200                22420                22425                22430
4201 Ser Arg Pro Ile Met Ala Glu Asn Pro Val Asp Ala Pro Gly Arg Pro
4202                22435                22440                22445
4203 Glu Val Thr Asp Val Thr Arg Ser Thr Val Ser Leu Ile Trp Ser Ala
E--> 4204    22450                22455                22460                2      2
4205 Pro Ala Tyr Asp Gly Gly Ser Lys Val Val Gly Tyr Ile Ile Glu Arg
E--> 4206    2465                22470                22475                22480
4207 Lys Pro Val Ser Glu Val Gly Asp Gly Arg Trp Leu Lys Cys Asn Tyr
4208                22485                22490                22495
4209 Thr Ile Val Ser Asp Asn Phe Phe Thr Val Thr Ala Leu Ser Glu Gly
4210                22500                22505                22510
4211 Asp Thr Tyr Glu Phe Arg Val Leu Ala Lys Asn Ala Ala Gly Val Ile
4212                22515                22520                22525
4213 Ser Lys Gly Ser Glu Ser Thr Gly Pro Val Thr Cys Arg Asp Glu Tyr
E--> 4214    22530                22535                22540                2      2
4215 Ala Pro Pro Lys Ala Glu Leu Asp Ala Arg Leu His Gly Asp Leu Val
E--> 4216    2545                22550                22555                22560
4217 Thr Ile Arg Ala Gly Ser Asp Leu Val Leu Asp Ala Ala Val Gly Gly

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4218          22565          22570          22575
4219 Lys Pro Glu Pro Lys Ile Ile Trp Thr Lys Gly Asp Lys Glu Leu Asp
4220          22580          22585          22590
4221 Leu Cys Glu Lys Val Ser Leu Gln Tyr Thr Gly Lys Arg Ala Thr Ala
4222          22595          22600          22605
4223 Val Ile Lys Phe Cys Asp Arg Ser Asp Ser Gly Lys Tyr Thr Leu Thr
E--> 4224 22610          22615          22620          2
4225 Val Lys Asn Ala Ser Gly Thr Lys Ala Val Ser Val Met Val Lys Val
E--> 4226 2625          22630          22635          22640
4227 Leu Asp Ser Pro Gly Pro Cys Gly Lys Leu Thr Val Ser Arg Val Thr
4228          22645          22650          22655
4229 Gln Glu Lys Cys Thr Leu Ala Trp Ser Leu Pro Gln Glu Asp Gly Gly
4230          22660          22665          22670
4231 Ala Glu Ile Thr His Tyr Ile Val Glu Arg Arg Glu Thr Ser Arg Leu
4232          22675          22680          22685
4233 Asn Trp Val Ile Val Glu Gly Glu Cys Pro Thr Leu Ser Tyr Val Val
E--> 4234 22690          22695          22700          2
4235 Thr Arg Leu Ile Lys Asn Asn Glu Tyr Ile Phe Arg Val Arg Ala Val
E--> 4236 2705          22710          22715          22720
4237 Asn Lys Tyr Gly Pro Gly Val Pro Val Glu Ser Glu Pro Ile Val Ala
4238          22725          22730          22735
4239 Arg Asn Ser Phe Thr Ile Pro Ser Pro Pro Gly Ile Pro Glu Glu Val
4240          22740          22745          22750
4241 Gly Thr Gly Lys Glu His Ile Ile Ile Gln Trp Thr Lys Pro Glu Ser
4242          22755          22760          22765
4243 Asp Gly Gly Asn Glu Ile Ser Asn Tyr Leu Val Asp Lys Arg Glu Lys
E--> 4244 22770          22775          22780          2
4245 Glu Ser Leu Arg Trp Thr Arg Val Asn Lys Asp Tyr Val Val Tyr Asp
E--> 4246 2785          22790          22795          22800
4247 Thr Arg Leu Lys Val Thr Ser Leu Met Glu Gly Cys Asp Tyr Gln Phe
4248          22805          22810          22815
4249 Arg Val Thr Ala Val Asn Ala Ala Gly Asn Ser Glu Pro Ser Glu Arg
4250          22820          22825          22830
4251 Ser Asn Phe Ile Ser Cys Arg Glu Pro Ser Tyr Thr Pro Gly Pro Pro
4252          22835          22840          22845
4253 Ser Ala Pro Arg Val Val Asp Thr Thr Lys His Ser Ile Ser Leu Ala
E--> 4254 22850          22855          22860          2
4255 Trp Thr Lys Pro Met Tyr Asp Gly Gly Thr Asp Ile Val Gly Tyr Val
E--> 4256 2865          22870          22875          22880
4257 Leu Glu Met Gln Glu Lys Asp Thr Asp Gln Trp Tyr Arg Val His Thr
4258          22885          22890          22895
4259 Asn Ala Thr Ile Arg Asn Thr Glu Phe Thr Val Pro Asp Leu Lys Met
4260          22900          22905          22910
4261 Gly Gln Lys Tyr Ser Phe Arg Val Ala Ala Val Asn Val Lys Gly Met
4262          22915          22920          22925
4263 Ser Glu Tyr Ser Glu Ser Ile Ala Glu Ile Glu Pro Val Glu Arg Ile
E--> 4264 22930          22935          22940          2
4265 Glu Ile Pro Asp Leu Glu Ala Asp Asp Leu Lys Lys Thr Val Thr
E--> 4266 2945          22950          22955          22960

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```

4267 Ile Arg Ala Gly Ala Ser Leu Arg Leu Met Val Ser Val Ser Gly Arg
4268                               22965                22970                22975
4269 Pro Pro Pro Val Ile Thr Trp Ser Lys Gln Gly Ile Asp Leu Ala Ser
4270                               22980                22985                22990
4271 Arg Ala Ile Ile Asp Thr Thr Glu Ser Tyr Ser Leu Leu Ile Val Asp
4272                               22995                23000                23005
4273 Lys Val Asn Arg Tyr Asp Ala Gly Lys Tyr Thr Ile Glu Ala Glu Asn
E--> 4274   23010                23015                23020                2
4275 Gln Ser Gly Lys Lys Ser Ala Thr Val Leu Val Lys Val Tyr Asp Thr
E--> 4276 3025                23030                23035                23040
4277 Pro Gly Pro Cys Pro Ser Val Lys Val Lys Glu Val Ser Arg Asp Ser
4278                               23045                23050                23055
4279 Val Thr Ile Thr Trp Glu Ile Pro Thr Ile Asp Gly Gly Ala Pro Ile
4280                               23060                23065                23070
4281 Asn Asn Tyr Ile Val Glu Lys Arg Glu Ala Ala Met Arg Ala Phe Lys
4282                               23075                23080                23085
4283 Thr Val Thr Thr Lys Cys Ser Lys Thr Leu Tyr Arg Ile Ser Gly Leu
E--> 4284   23090                23095                23100                2
4285 Val Glu Gly Thr Met His Tyr Phe Arg Val Leu Pro Glu Asn Ile Tyr
E--> 4286 3105                23110                23115                23120
4287 Gly Ile Gly Glu Pro Cys Glu Thr Ser Asp Ala Val Leu Val Ser Glu
4288                               23125                23130                23135
4289 Val Pro Leu Val Pro Ala Lys Leu Glu Val Val Asp Val Thr Lys Ser
4290                               23140                23145                23150
4291 Thr Val Thr Leu Ala Trp Glu Lys Pro Leu Tyr Asp Gly Gly Ser Arg
4292                               23155                23160                23165
4293 Leu Thr Gly Tyr Val Leu Glu Ala Cys Lys Ala Gly Thr Glu Arg Trp
E--> 4294   23170                23175                23180                2
4295 Met Lys Val Val Thr Leu Lys Pro Thr Val Leu Glu His Thr Val Thr
E--> 4296 3185                23190                23195                23200
4297 Ser Leu Asn Glu Gly Glu Glu Tyr Leu Phe Arg Ile Arg Ala Gln Asn
4298                               23205                23210                23215
4299 Glu Lys Gly Val Ser Glu Pro Arg Glu Thr Val Thr Ala Val Thr Val
4300                               23220                23225                23230
4301 Gln Asp Leu Arg Val Leu Pro Thr Ile Asp Leu Ser Thr Met Pro Gln
4302                               23235                23240                23245
4303 Lys Thr Ile His Val Pro Ala Gly Arg Pro Val Glu Leu Val Ile Pro
E--> 4304   23250                23255                23260                2
4305 Ile Ala Gly Arg Pro Pro Ala Ala Ser Trp Phe Phe Ala Gly Ser
E--> 4306 3265                23270                23275                23280
4307 Lys Leu Arg Glu Ser Glu Arg Val Thr Val Glu Thr His Thr Lys Val
4308                               23285                23290                23295
4309 Ala Lys Leu Thr Ile Arg Glu Thr Thr Ile Arg Asp Thr Gly Glu Tyr
4310                               23300                23305                23310
4311 Thr Leu Glu Leu Lys Asn Val Thr Gly Thr Thr Ser Glu Thr Ile Lys
4312                               23315                23320                23325
4313 Val Ile Ile Leu Asp Lys Pro Gly Pro Pro Thr Gly Pro Ile Lys Ile
E--> 4314   23330                23335                23340                2
4315 Asp Glu Ile Asp Ala Thr Ser Ile Thr Ile Ser Trp Glu Pro Pro Glu

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E--> 4316 3345          23350          23355          23360
4317 Leu Asp Gly Gly Ala Pro Leu Ser Gly Tyr Val Val Glu Gln Arg Asp
4318          23365          23370          23375
4319 Ala His Arg Pro Gly Trp Leu Pro Val Ser Glu Ser Val Thr Arg Ser
4320          23380          23385          23390
4321 Thr Phe Lys Phe Thr Arg Leu Thr Glu Gly Asn Glu Tyr Val Phe Arg
4322          23395          23400          23405
4323 Val Ala Ala Thr Asn Arg Phe Gly Ile Gly Ser Tyr Leu Gln Ser Glu
E--> 4324 23410          23415          23420          2
4325 Val Ile Glu Cys Arg Ser Ser Ile Arg Ile Pro Gly Pro Pro Glu Thr
E--> 4326 3425          23430          23435          23440
4327 Leu Gln Ile Phe Asp Val Ser Arg Asp Gly Met Thr Leu Thr Trp Tyr
4328          23445          23450          23455
4329 Pro Pro Glu Asp Asp Gly Gly Ser Gln Val Thr Gly Tyr Ile Val Glu
4330          23460          23465          23470
4331 Arg Lys Glu Val Arg Ala Asp Arg Trp Val Arg Val Asn Lys Val Pro
4332          23475          23480          23485
4333 Val Thr Met Thr Arg Tyr Arg Ser Thr Gly Leu Thr Glu Gly Leu Glu
E--> 4334 23490          23495          23500          2
4335 Tyr Glu His Arg Val Thr Ala Ile Asn Ala Arg Gly Ser Gly Lys Pro
E--> 4336 3505          23510          23515          23520
4337 Ser Arg Pro Ser Lys Pro Ile Val Ala Met Asp Pro Ile Ala Pro Pro
4338          23525          23530          23535
4339 Gly Lys Pro Gln Asn Pro Arg Val Thr Asp Thr Thr Arg Thr Ser Val
4340          23540          23545          23550
4341 Ser Leu Ala Trp Ser Val Pro Glu Asp Glu Gly Gly Ser Lys Val Thr
4342          23555          23560          23565
4343 Gly Tyr Leu Ile Glu Met Gln Lys Val Asp Gln His Glu Trp Thr Lys
E--> 4344 23570          23575          23580          2
4345 Cys Asn Thr Thr Pro Thr Lys Ile Arg Glu Tyr Thr Leu Thr His Leu
E--> 4346 3585          23590          23595          23600
4347 Pro Gln Gly Ala Glu Tyr Arg Phe Arg Val Leu Ala Cys Asn Ala Gly
4348          23605          23610          23615
4349 Gly Pro Gly Glu Pro Ala Glu Val Pro Gly Thr Val Lys Val Thr Glu
4350          23620          23625          23630
4351 Met Leu Glu Tyr Pro Asp Tyr Glu Leu Asp Glu Arg Tyr Gln Glu Gly
4352          23635          23640          23645
4353 Ile Phe Val Arg Gln Gly Gly Val Ile Arg Leu Thr Ile Pro Ile Lys
E--> 4354 23650          23655          23660          2
4355 Gly Lys Pro Phe Pro Ile Cys Lys Trp Thr Lys Glu Gly Gln Asp Ile
E--> 4356 3665          23670          23675          23680
4357 Ser Lys Arg Ala Met Ile Ala Thr Ser Glu Thr His Thr Glu Leu Val
4358          23685          23690          23695
4359 Ile Lys Glu Ala Asp Arg Gly Asp Ser Gly Thr Tyr Asp Leu Val Leu
4360          23700          23705          23710
4361 Glu Asn Lys Cys Gly Lys Lys Ala Val Tyr Ile Lys Val Arg Val Ile
4362          23715          23720          23725
4363 Gly Ser Pro Asn Ser Pro Glu Gly Pro Leu Glu Tyr Asp Asp Ile Gln
E--> 4364 23730          23735          23740          2

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4365 Val Arg Ser Val Arg Val Ser Trp Arg Pro Pro Ala Asp Asp Gly Gly
E--> 4366 3745      23750      23755      23760
4367 Ala Asp Ile Leu Gly Tyr Ile Leu Glu Arg Arg Glu Val Pro Lys Ala
4368      23765      23770      23775
4369 Ala Trp Tyr Thr Ile Asp Ser Arg Val Arg Gly Thr Ser Leu Val Val
4370      23780      23785      23790
4371 Lys Gly Leu Lys Glu Asn Val Glu Tyr His Phe Arg Val Ser Ala Glu
4372      23795      23800      23805
4373 Asn Gln Phe Gly Ile Ser Lys Pro Leu Lys Ser Glu Glu Pro Val Thr
E--> 4374 23810      23815      23820      2
4375 Pro Lys Thr Pro Leu Asn Pro Pro Glu Pro Pro Ser Asn Pro Pro Glu
E--> 4376 3825      23830      23835      23840
4377 Val Leu Asp Val Thr Lys Ser Ser Val Ser Leu Ser Trp Ser Arg Pro
4378      23845      23850      23855
4379 Lys Asp Asp Gly Gly Ser Arg Val Thr Gly Tyr Tyr Ile Glu Arg Lys
4380      23860      23865      23870
4381 Glu Thr Ser Thr Asp Lys Trp Val Arg His Asn Lys Thr Gln Ile Thr
4382      23875      23880      23885
4383 Thr Thr Met Tyr Thr Val Thr Gly Leu Val Pro Asp Ala Glu Tyr Gln
E--> 4384 23890      23895      23900      2
4385 Phe Arg Ile Ile Ala Gln Asn Asp Val Gly Leu Ser Glu Thr Ser Pro
E--> 4386 3905      23910      23915      23920
4387 Ala Ser Glu Pro Val Val Cys Lys Asp Pro Phe Asp Lys Pro Ser Gln
4388      23925      23930      23935
4389 Pro Gly Glu Leu Glu Ile Leu Ser Ile Ser Lys Asp Ser Val Thr Leu
4390      23940      23945      23950
4391 Gln Trp Glu Lys Pro Glu Cys Asp Gly Gly Lys Glu Ile Leu Gly Tyr
4392      23955      23960      23965
4393 Trp Val Glu Tyr Arg Gln Ser Gly Asp Ser Ala Trp Lys Lys Ser Asn
E--> 4394 23970      23975      23980      2
4395 Lys Glu Arg Ile Lys Asp Lys Gln Phe Thr Ile Gly Gly Leu Leu Glu
E--> 4396 3985      23990      23995      24000
4397 Ala Thr Glu Tyr Glu Phe Arg Val Phe Ala Glu Asn Glu Thr Gly Leu
4398      24005      24010      24015
4399 Ser Arg Pro Arg Arg Thr Ala Met Ser Ile Lys Thr Lys Leu Thr Ser
4400      24020      24025      24030
4401 Gly Glu Ala Pro Gly Ile Arg Lys Glu Met Lys Asp Val Thr Thr Lys
4402      24035      24040      24045
4403 Leu Gly Glu Ala Ala Gln Leu Ser Cys Gln Ile Val Gly Arg Pro Leu
E--> 4404 24050      24055      24060      2
4405 Pro Asp Ile Lys Trp Tyr Arg Phe Gly Lys Glu Leu Ile Gln Ser Arg
E--> 4406 4065      24070      24075      24080
4407 Lys Tyr Lys Met Ser Ser Asp Gly Arg Thr His Thr Leu Thr Val Met
4408      24085      24090      24095
4409 Thr Glu Glu Gln Glu Asp Glu Gly Val Tyr Thr Cys Ile Ala Thr Asn
4410      24100      24105      24110
4411 Glu Val Gly Glu Val Glu Thr Ser Ser Lys Leu Leu Gln Ala Thr
4412      24115      24120      24125
4413 Pro Gln Phe His Pro Gly Tyr Pro Leu Lys Glu Lys Tyr Tyr Gly Ala

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E--> 4414      24130      24135      24140      2
4415 Val Gly Ser Thr Leu Arg Leu His Val Met Tyr Ile Gly Arg Pro Val
E--> 4416 4145      24150      24155      24160
4417 Pro Ala Met Thr Trp Phe His Gly Gln Lys Leu Leu Gln Asn Ser Glu
4418      24165      24170      24175
4419 Asn Ile Thr Ile Glu Asn Thr Glu His Tyr Thr His Leu Val Met Lys
4420      24180      24185      24190
4421 Asn Val Gln Arg Lys Thr His Ala Gly Lys Tyr Lys Val Gln Leu Ser
4422      24195      24200      24205
4423 Asn Val Phe Gly Thr Val Asp Ala Ile Leu Asp Val Glu Ile Gln Asp
E--> 4424      24210      24215      24220      2
4425 Lys Pro Asp Lys Pro Thr Gly Pro Ile Val Ile Glu Ala Leu Leu Lys
E--> 4426 4225      24230      24235      24240
4427 Asn Ser Ala Val Ile Ser Trp Lys Pro Pro Ala Asp Asp Gly Gly Ser
4428      24245      24250      24255
4429 Trp Ile Thr Asn Tyr Val Val Glu Lys Cys Glu Ala Lys Glu Gly Ala
4430      24260      24265      24270
4431 Glu Trp Gln Leu Val Ser Ser Ala Ile Ser Val Thr Thr Cys Arg Ile
4432      24275      24280      24285
4433 Val Asn Leu Thr Glu Asn Ala Gly Tyr Tyr Phe Arg Val Ser Ala Gln
E--> 4434      24290      24295      24300      2
4435 Asn Thr Phe Gly Ile Ser Asp Pro Leu Glu Val Ser Ser Val Val Ile
E--> 4436 4305      24310      24315      24320
4437 Ile Lys Ser Pro Phe Glu Lys Pro Gly Ala Pro Gly Lys Pro Thr Ile
4438      24325      24330      24335
4439 Thr Ala Val Thr Lys Asp Ser Cys Val Val Ala Trp Lys Pro Pro Ala
4440      24340      24345      24350
4441 Ser Asp Gly Gly Ala Lys Ile Arg Asn Tyr Tyr Leu Glu Lys Arg Glu
4442      24355      24360      24365
4443 Lys Lys Gln Asn Lys Trp Ile Ser Val Thr Thr Glu Glu Ile Arg Glu
E--> 4444      24370      24375      24380      2
4445 Thr Val Phe Ser Val Lys Asn Leu Ile Glu Gly Leu Glu Tyr Glu Phe
E--> 4446 4385      24390      24395      24400
4447 Arg Val Lys Cys Glu Asn Leu Gly Gly Glu Ser Glu Trp Ser Glu Ile
4448      24405      24410      24415
4449 Ser Glu Pro Ile Thr Pro Lys Ser Asp Val Pro Ile Gln Ala Pro His
4450      24420      24425      24430
4451 Phe Lys Glu Glu Leu Arg Asn Leu Asn Val Arg Tyr Gln Ser Asn Ala
4452      24435      24440      24445
4453 Thr Leu Val Cys Lys Val Thr Gly His Pro Lys Pro Ile Val Lys Trp
E--> 4454      24450      24455      24460      2
4455 Tyr Arg Gln Gly Lys Glu Ile Ile Ala Asp Gly Leu Lys Tyr Arg Ile
E--> 4456 4465      24470      24475      24480
4457 Gln Glu Phe Lys Gly Gly Tyr His Gln Leu Ile Ile Ala Ser Val Thr
4458      24485      24490      24495
4459 Asp Asp Asp Ala Thr Val Tyr Gln Val Arg Ala Thr Asn Gln Gly Gly
4460      24500      24505      24510
4461 Ser Val Ser Gly Thr Ala Ser Leu Glu Val Glu Val Pro Ala Lys Ile
4462      24515      24520      24525

```



RAW SEQUENCE LISTING  
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Input Set : A:\00786.381002.SEQLIST.TXT  
 Output Set: N:\CRF3\01292001\I759508.raw

```

4463 His Leu Pro Lys Thr Leu Glu Gly Met Gly Ala Val His Ala Leu Arg
E--> 4464 24530 24535 24540 2
4465 Gly Glu Val Val Ser Ile Lys Ile Pro Phe Ser Gly Lys Pro Asp Pro
E--> 4466 4545 24550 24555 24560
4467 Val Ile Thr Trp Gln Lys Gly Gln Asp Leu Ile Asp Asn Asn Gly His
4468 24565 24570 24575
4469 Tyr Gln Val Ile Val Thr Arg Ser Phe Thr Ser Leu Val Phe Pro Asn
4470 24580 24585 24590
4471 Gly Val Glu Arg Lys Asp Ala Gly Phe Tyr Val Val Cys Ala Lys Asn
4472 24595 24600 24605
4473 Arg Phe Gly Ile Asp Gln Lys Thr Val Glu Leu Asp Val Ala Asp Val
E--> 4474 24610 24615 24620 2
4475 Pro Asp Pro Pro Arg Gly Val Lys Val Ser Asp Ala Ser Arg Asp Ser
E--> 4476 4625 24630 24635 24640
4477 Val Asn Leu Thr Trp Thr Glu Pro Ala Ser Asp Gly Gly Ser Lys Ile
4478 24645 24650 24655
4479 Thr Asn Tyr Ile Val Glu Lys Cys Ala Thr Thr Ala Glu Arg Trp Leu
4480 24660 24665 24670
4481 Arg Val Gly Glu Ala Arg Glu Thr Arg Tyr Thr Val Ile Asn Leu Phe
4482 24675 24680 24685
4483 Gly Lys Thr Ser Tyr Gln Phe Arg Val Ile Ala Glu Asn Lys Phe Gly
E--> 4484 24690 24695 24700 2
4485 Leu Ser Lys Pro Ser Glu Pro Ser Glu Pro Thr Ile Thr Lys Glu Asp
E--> 4486 4705 24710 24715 24720
4487 Lys Thr Arg Ala Met Asn Tyr Asp Glu Glu Val Asp Glu Thr Arg Glu
4488 24725 24730 24735
4489 Val Ser Met Thr Lys Ala Ser His Ser Ser Thr Lys Glu Leu Thr Glu
4490 24740 24745 24750
4491 Lys Tyr Met Ile Ala Glu Asp Leu Gly Arg Gly Glu Phe Gly Ile Val
4492 24755 24760 24765
4493 His Arg Cys Val Glu Thr Ser Ser Lys Lys Thr Tyr Met Ala Lys Phe
E--> 4494 24770 24775 24780 2
4495 Val Lys Val Lys Gly Thr Asp Gln Val Leu Val Lys Lys Glu Ile Ser
E--> 4496 4785 24790 24795 24800
4497 Ile Leu Asn Ile Ala Arg His Arg Asn Ile Leu His Leu His Glu Ser
4498 24805 24810 24815
4499 Phe Glu Ser Met Glu Glu Leu Val Met Ile Phe Glu Phe Ile Ser Gly
4500 24820 24825 24830
4501 Leu Asp Ile Phe Glu Arg Ile Asn Thr Ser Ala Phe Glu Leu Asn Glu
4502 24835 24840 24845
4503 Arg Glu Ile Val Ser Tyr Val His Gln Val Cys Glu Ala Leu Gln Phe
E--> 4504 24850 24855 24860 2
4505 Leu His Ser His Asn Ile Gly His Phe Asp Ile Arg Pro Glu Asn Ile
E--> 4506 4865 24870 24875 24880
4507 Ile Tyr Gln Thr Arg Arg Ser Ser Thr Ile Lys Ile Ile Glu Phe Gly
4508 24885 24890 24895
4509 Gln Ala Arg Gln Leu Lys Pro Gly Asp Asn Phe Arg Leu Leu Phe Thr
4510 24900 24905 24910
4511 Ala Pro Glu Tyr Thr Ala Pro Glu Val His Gln His Asp Val Val Ser

```

RAW SEQUENCE LISTING  
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Input Set : A:\00786.381002.SEQLIST.TXT  
 Output Set: N:\CRF3\01292001\I759508.raw

```

4512          24915          24920          24925
4513 Thr Ala Thr Asp Met Trp Ser Leu Gly Thr Leu Val Tyr Val Leu Leu
E--> 4514    24930          24935          24940          2          2
4515 Ser Gly Ile Asn Pro Phe Leu Ala Glu Thr Asn Gln Gln Ile Ile Glu
E--> 4516 4945    24950    24955    24960
4517 Asn Ile Met Asn Ala Glu Tyr Thr Phe Asp Glu Ala Phe Lys Glu
4518          24965          24970          24975
4519 Ile Ser Ile Glu Ala Met Asp Phe Val Asp Arg Leu Leu Val Lys Glu
4520          24980          24985          24990
4521 Arg Lys Ser Arg Met Thr Ala Ser Glu Ala Leu Gln His Pro Trp Leu
4522          24995          25000          25005
4523 Lys Gln Lys Ile Glu Arg Val Ser Thr Lys Val Ile Arg Thr Leu Lys
E--> 4524    25010          25015          25020          2          2
4525 His Arg Arg Tyr Tyr His Thr Leu Ile Lys Lys Asp Leu Asn Met Val
E--> 4526 5025    25030    25035    25040
4527 Val Ser Ala Ala Arg Ile Ser Cys Gly Gly Ala Ile Arg Ser Gln Lys
4528          25045          25050          25055
4529 Gly Val Ser Val Ala Lys Val Lys Val Ala Ser Ile Glu Ile Gly Pro
4530          25060          25065          25070
4531 Val Ser Gly Gln Ile Met His Ala Val Gly Glu Glu Gly Gly His Val
4532          25075          25080          25085
4533 Lys Tyr Val Cys Lys Ile Glu Asn Tyr Asp Gln Ser Thr Gln Val Thr
E--> 4534    25090          25095          25100          2          2
4535 Trp Tyr Phe Gly Val Arg Gln Leu Glu Asn Ser Glu Lys Tyr Glu Ile
E--> 4536 5105    25110    25115    25120
4537 Thr Tyr Glu Asp Gly Val Ala Ile Leu Tyr Val Lys Asp Ile Thr Lys
4538          25125          25130          25135
4539 Leu Asp Asp Gly Thr Tyr Arg Cys Lys Val Val Asn Asp Tyr Gly Glu
4540          25140          25145          25150
4541 Asp Ser Ser Tyr Ala Glu Leu Phe Val Lys Gly Val Arg Glu Val Tyr
4542          25155          25160          25165
4543 Asp Tyr Tyr Cys Arg Arg Thr Met Lys Lys Ile Lys Arg Arg Thr Asp
E--> 4544    25170          25175          25180          2          2
4545 Thr Met Arg Leu Leu Glu Arg Pro Pro Glu Phe Thr Leu Pro Leu Tyr
E--> 4546 5185    25190    25195    25200
4547 Asn Lys Thr Ala Tyr Val Gly Glu Asn Val Arg Phe Gly Val Thr Ile
4548          25205          25210          25215
4549 Thr Val His Pro Glu Pro His Val Thr Trp Tyr Lys Ser Gly Gln Lys
4550          25220          25225          25230
4551 Ile Lys Pro Gly Asp Asn Asp Lys Lys Tyr Thr Phe Glu Ser Asp Lys
4552          25235          25240          25245
4553 Gly Leu Tyr Gln Leu Thr Ile Asn Ser Val Thr Thr Asp Asp Ala
E--> 4554    25250          25255          25260          2          2
4555 Glu Tyr Thr Val Val Ala Arg Asn Lys Tyr Gly Glu Asp Ser Cys Lys
E--> 4556 5265    25270    25275    25280
4557 Ala Lys Leu Thr Val Thr Leu His Pro Pro Pro Thr Asp Ser Thr Leu
4558          25285          25290          25295
4559 Arg Pro Met Phe Lys Arg Leu Leu Ala Asn Ala Glu Cys Gln Glu Gly
4560          25300          25305          25310

```

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Input Set : A:\00786.381002.SEQLIST.TXT  
 Output Set: N:\CRF3\01292001\I759508.raw

```

4561 Gln Ser Val Cys Phe Glu Ile Arg Val Ser Gly Ile Pro Pro Pro Thr
4562      25315      25320      25325
4563 Leu Lys Trp Glu Lys Asp Gly Gln Pro Leu Ser Leu Gly Pro Asn Ile
E--> 4564      25330      25335      25340      2
4565 Glu Ile Ile His Glu Gly Leu Asp Tyr Tyr Ala Leu His Ile Arg Asp
E--> 4566 5345      25350      25355      25360
4567 Thr Leu Pro Glu Asp Thr Gly Tyr Tyr Arg Val Thr Ala Thr Asn Thr
4568      25365      25370      25375
4569 Ala Gly Ser Thr Ser Cys Gln Ala His Leu Gln Val Glu Arg Leu Arg
4570      25380      25385      25390
4571 Tyr Lys Lys Gln Glu Phe Lys Ser Lys Glu Glu His Glu Arg His Val
4572      25395      25400      25405
4573 Gln Lys Gln Ile Asp Lys Thr Leu Arg Met Ala Glu Ile Leu Ser Gly
E--> 4574      25410      25415      25420      2
4575 Thr Glu Ser Val Pro Leu Thr Gln Val Ala Lys Glu Ala Leu Arg Glu
E--> 4576 5425      25430      25435      25440
4577 Ala Ala Val Leu Tyr Lys Pro Ala Val Ser Thr Lys Thr Val Lys Gly
4578      25445      25450      25455
4579 Glu Phe Arg Leu Glu Ile Glu Glu Lys Lys Glu Glu Arg Lys Leu Arg
4580      25460      25465      25470
4581 Met Pro Tyr Asp Val Pro Glu Pro Arg Lys Tyr Lys Gln Thr Thr Ile
4582      25475      25480      25485
4583 Glu Glu Asp Gln Arg Ile Lys Gln Phe Val Pro Met Ser Asp Met Lys
E--> 4584      25490      25495      25500      2
4585 Trp Tyr Lys Lys Ile Arg Asp Gln Tyr Glu Met Pro Gly Lys Leu Asp
E--> 4586 5505      25510      25515      25520
4587 Arg Val Val Gln Lys Arg Pro Lys Arg Ile Arg Leu Ser Arg Trp Glu
4588      25525      25530      25535
4589 Glu Phe Tyr Val Met Pro Leu Pro Arg Ile Thr Asp Gln Tyr Arg Pro
4590      25540      25545      25550
4591 Lys Trp Arg Ile Pro Lys Leu Ser Gln Asp Asp Leu Glu Ile Val Arg
4592      25555      25560      25565
4593 Pro Ala Arg Arg Arg Thr Pro Ser Pro Asp Tyr Asp Phe Tyr Tyr Arg
E--> 4594      25570      25575      25580      2
4595 Pro Arg Arg Arg Ser Leu Gly Asp Ile Ser Asp Glu Glu Leu Leu Leu
E--> 4596 5585      25590      25595      25600
4597 Pro Ile Asp Asp Tyr Leu Ala Met Lys Arg Thr Glu Glu Glu Arg Leu
4598      25605      25610      25615
4599 Arg Leu Glu Glu Glu Leu Glu Leu Gly Phe Ser Ala Ser Pro Pro Ser
4600      25620      25625      25630
4601 Arg Ser Pro Pro His Phe Glu Leu Ser Ser Leu Arg Tyr Ser Ser Pro
4602      25635      25640      25645
4603 Gln Ala His Val Lys Val Glu Glu Thr Arg Lys Asn Phe Arg Tyr Ser
E--> 4604      25650      25655      25660      2
4605 Thr Tyr His Ile Pro Thr Lys Ala Glu Ala Ser Thr Ser Tyr Ala Glu
E--> 4606 5665      25670      25675      25680
4607 Leu Arg Glu Arg His Ala Glu Ala Ala Tyr Arg Gln Pro Lys Gln Arg
4608      25685      25690      25695
4609 Gln Arg Ile Met Ala Glu Arg Glu Asp Glu Glu Leu Leu Arg Pro Val

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Input Set : A:\00786.381002.SEQLIST.TXT  
 Output Set: N:\CRF3\01292001\I759508.raw

```

4610          25700          25705          25710
4611 Thr Thr Thr Gln His Leu Ser Glu Tyr Lys Ser Glu Leu Asp Phe Met
4612          25715          25720          25725
4613 Ser Lys Glu Glu Lys Ser Arg Lys Lys Ser Arg Arg Gln Arg Glu Val
E--> 4614      25730          25735          25740          2
4615 Thr Glu Ile Thr Glu Ile Glu Glu Glu Tyr Glu Ile Ser Lys His Ala
E--> 4616 5745          25750          25755          25760
4617 Gln Arg Glu Ser Ser Ser Ser Ala Ser Arg Leu Leu Arg Arg Arg Arg
4618          25765          25770          25775
4619 Ser Leu Ser Pro Thr Tyr Ile Glu Leu Met Arg Pro Val Ser Glu Leu
4620          25780          25785          25790
4621 Ile Arg Ser Arg Pro Gln Pro Ala Glu Glu Tyr Glu Asp Asp Thr Glu
4622          25795          25800          25805
4623 Arg Arg Ser Pro Thr Pro Glu Arg Thr Arg Pro Arg Ser Pro Ser Pro
E--> 4624      25810          25815          25820          2
4625 Val Ser Ser Glu Arg Ser Leu Ser Arg Phe Glu Arg Ser Ala Arg Phe
E--> 4626 5825          25830          25835          25840
4627 Asp Ile Phe Ser Arg Tyr Glu Ser Met Lys Ala Ala Leu Lys Thr Gln
4628          25845          25850          25855
4629 Lys Thr Ser Glu Arg Lys Tyr Glu Val Leu Ser Gln Gln Pro Phe Thr
4630          25860          25865          25870
4631 Leu Asp His Ala Pro Arg Ile Thr Leu Arg Met Arg Ser His Arg Val
4632          25875          25880          25885
4633 Pro Cys Gly Gln Asn Thr Arg Phe Ile Leu Asn Val Gln Ser Lys Pro
E--> 4634      25890          25895          25900          2
4635 Thr Ala Glu Val Lys Trp Tyr His Asn Gly Val Glu Leu Gln Glu Ser
E--> 4636 5905          25910          25915          25920
4637 Ser Lys Ile His Tyr Thr Asn Thr Ser Gly Val Leu Thr Leu Glu Ile
4638          25925          25930          25935
4639 Leu Asp Cys His Thr Asp Asp Ser Gly Thr Tyr Arg Ala Val Cys Thr
4640          25940          25945          25950
4641 Asn Tyr Lys Gly Glu Ala Ser Asp Tyr Ala Thr Leu Asp Val Thr Gly
4642          25955          25960          25965
4643 Gly Asp Tyr Thr Thr Tyr Ala Ser Gln Arg Arg Asp Glu Glu Val Pro
E--> 4644      25970          25975          25980          2
4645 Arg Ser Val Phe Pro Glu Leu Thr Arg Thr Glu Ala Tyr Ala Val Pro
E--> 4646 5985          25990          25995          26000
4647 Ser Phe Lys Lys Thr Ser Glu Met Glu Ala Ser Ser Ser Val Arg Glu
4648          26005          26010          26015
4649 Val Lys Ser Gln Met Thr Glu Thr Arg Glu Ser Leu Ser Ser Tyr Glu
4650          26020          26025          26030
4651 His Ser Ala Ser Ala Glu Met Lys Ser Ala Ala Leu Glu Glu Lys Ser
4652          26035          26040          26045
4653 Leu Glu Glu Lys Ser Thr Thr Arg Lys Ile Lys Thr Thr Leu Ala Ala
E--> 4654      26050          26055          26060          2
4655 Arg Ile Leu Thr Lys Pro Arg Ser Met Thr Val Tyr Glu Gly Glu Ser
E--> 4656 6065          26070          26075          26080
4657 Ala Arg Phe Ser Cys Asp Thr Asp Gly Glu Pro Val Pro Thr Val Thr
4658          26085          26090          26095

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```

4659 Trp Leu Arg Lys Gly Gln Val Leu Ser Thr Ser Ala Arg His Gln Val
4660      26100      26105      26110
4661 Thr Thr Thr Lys Tyr Lys Ser Thr Phe Glu Ile Ser Ser Val Gln Ala
4662      26115      26120      26125
4663 Ser Asp Glu Gly Asn Tyr Ser Val Val Val Glu Asn Ser Glu Gly Lys
E--> 4664 26130      26135      26140      2
4665 Gln Glu Ala Glu Phe Thr Leu Thr Ile Gln Lys Ala Arg Val Thr Glu
E--> 4666 6145      26150      26155      26160
4667 Lys Ala Val Thr Ser Pro Pro Arg Val Lys Ser Pro Glu Pro Arg Val
4668      26165      26170      26175
4669 Lys Ser Pro Glu Ala Val Lys Ser Pro Lys Arg Val Lys Ser Pro Glu
4670      26180      26185      26190
4671 Pro Ser His Pro Lys Ala Val Ser Pro Thr Glu Thr Lys Pro Thr Pro
4672      26195      26200      26205
4673 Arg Glu Lys Val Gln His Leu Pro Val Ser Ala Pro Pro Lys Ile Thr
E--> 4674 26210      26215      26220      2
4675 Gln Phe Leu Lys Ala Glu Ala Ser Lys Glu Ile Ala Lys Leu Thr Cys
E--> 4676 6225      26230      26235      26240
4677 Val Val Glu Ser Ser Val Leu Arg Ala Lys Glu Val Thr Trp Tyr Lys
4678      26245      26250      26255
4679 Asp Gly Lys Lys Leu Lys Glu Asn Gly His Phe Gln Phe His Tyr Ser
4680      26260      26265      26270
4681 Ala Asp Gly Thr Tyr Glu Leu Lys Ile Asn Asn Leu Thr Glu Ser Asp
4682      26275      26280      26285
4683 Gln Gly Glu Tyr Val Cys Glu Ile Ser Gly Glu Gly Thr Ser Lys
E--> 4684 26290      26295      26300      2
4685 Thr Asn Leu Gln Phe Met Gly Glu Ala Phe Lys Ser Ile His Glu Lys
E--> 4686 6305      26310      26315      26320
4687 Val Ser Lys Ile Ser Glu Thr Lys Lys Ser Asp Gln Lys Thr Thr Glu
4688      26325      26330      26335
4689 Ser Thr Val Thr Arg Lys Thr Glu Pro Lys Ala Pro Glu Pro Ile Ser
4690      26340      26345      26350
4691 Ser Lys Pro Val Ile Val Thr Gly Leu Gln Asp Thr Thr Val Ser Ser
4692      26355      26360      26365
4693 Asp Ser Val Ala Lys Phe Ala Val Lys Ala Thr Gly Glu Pro Arg Pro
E--> 4694 26370      26375      26380      2
4695 Thr Ala Ile Trp Thr Lys Asp Gly Lys Ala Ile Thr Gln Gly Gly Lys
E--> 4696 6385      26390      26395      26400
4697 Tyr Lys Leu Ser Glu Asp Lys Gly Gly Phe Phe Leu Glu Ile His Lys
4698      26405      26410      26415
4699 Thr Asp Thr Ser Asp Ser Gly Leu Tyr Thr Cys Thr Val Lys Asn Ser
4700      26420      26425      26430
4701 Ala Gly Ser Val Ser Ser Ser Cys Lys Leu Thr Ile Lys Ala Ile Lys
4702      26435      26440      26445
4703 Asp Thr Glu Ala Gln Lys Val Ser Thr Gln Lys Thr Ser Glu Ile Thr
E--> 4704 26450      26455      26460      2
4705 Pro Gln Lys Lys Ala Val Val Gln Glu Glu Ile Ser Gln Lys Ala Leu
E--> 4706 6465      26470      26475      26480
4707 Arg Ser Glu Glu Ile Lys Met Ser Glu Ala Lys Ser Gln Glu Lys Leu

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```

4708                26485                26490                26495
4709 Ala Leu Lys Glu Glu Ala Ser Lys Val Leu Ile Ser Glu Glu Val Lys
4710                26500                26505                26510
4711 Lys Ser Ala Ala Thr Ser Leu Glu Lys Ser Ile Val His Glu Glu Ile
4712                26515                26520                26525
4713 Thr Lys Thr Ser Gln Ala Ser Glu Glu Val Arg Thr His Ala Glu Ile
E--> 4714 26530                26535                26540                2
4715 Lys Ala Phe Ser Thr Gln Met Ser Ile Asn Glu Gly Gln Arg Leu Val
E--> 4716 6545                26550                26555                26560
4717 Leu Lys Ala Asn Ile Ala Gly Ala Thr Asp Val Lys Trp Val Leu Asn
4718                26565                26570                26575
4719 Gly Val Glu Leu Thr Asn Ser Glu Glu Tyr Arg Tyr Gly Val Ser Gly
4720                26580                26585                26590
4721 Ser Asp Gln Thr Leu Thr Ile Lys Gln Ala Ser His Arg Asp Glu Gly
4722                26595                26600                26605
4723 Ile Leu Thr Cys Ile Ser Lys Thr Lys Glu Gly Ile Val Lys Cys Gln
E--> 4724 26610                26615                26620                2
4725 Tyr Asp Leu Thr Leu Ser Lys Glu Leu Ser Asp Ala Pro Ala Phe Ile
E--> 4726 6625                26630                26635                26640
4727 Ser Gln Pro Arg Ser Gln Asn Ile Asn Glu Gly Gln Asn Val Leu Phe
4728                26645                26650                26655
4729 Thr Cys Glu Ile Ser Gly Glu Pro Ser Pro Glu Ile Glu Trp Phe Lys
4730                26660                26665                26670
4731 Asn Asn Leu Pro Ile Ser Ile Ser Ser Asn Val Ser Ile Ser Arg Ser
4732                26675                26680                26685
4733 Arg Asn Val Tyr Ser Leu Glu Ile Arg Asn Ala Ser Val Ser Asp Ser
E--> 4734 26690                26695                26700                2
4735 Gly Lys Tyr Thr Ile Lys Ala Lys Asn Phe Arg Gly Gln Cys Ser Ala
E--> 4736 6705                26710                26715                26720
4737 Thr Ala Ser Leu Met Val Leu Pro Leu Val Glu Glu Pro Ser Arg Glu
4738                26725                26730                26735
4739 Val Val Leu Arg Thr Ser Gly Asp Thr Ser Leu Gln Gly Ser Phe Ser
4740                26740                26745                26750
4741 Ser Gln Ser Val Gln Met Ser Ala Ser Lys Gln Glu Ala Ser Phe Ser
4742                26755                26760                26765
4743 Ser Phe Ser Ser Ser Ala Ser Ser Met Thr Glu Met Lys Phe Ala
E--> 4744 26770                26775                26780                2
4745 Ser Met Ser Ala Gln Ser Met Ser Ser Met Gln Glu Ser Phe Val Glu
E--> 4746 6785                26790                26795                26800
4747 Met Ser Ser Ser Ser Phe Met Gly Ile Ser Asn Met Thr Gln Leu Glu
4748                26805                26810                26815
4749 Ser Ser Thr Ser Lys Met Leu Lys Ala Gly Ile Arg Gly Ile Pro Pro
4750                26820                26825                26830
4751 Lys Ile Glu Ala Leu Pro Ser Asp Ile Ser Ile Asp Glu Gly Lys Val
4752                26835                26840                26845
4753 Leu Thr Val Ala Cys Ala Phe Thr Gly Glu Pro Thr Pro Glu Val Thr
E--> 4754 26850                26855                26860                2
4755 Trp Ser Cys Gly Gly Arg Lys Ile His Ser Gln Glu Gly Arg Phe
E--> 4756 6865                26870                26875                26880

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4757 His Ile Glu Asn Thr Asp Asp Leu Thr Thr Leu Ile Ile Met Asp Val  
4758 26885 26890 26895  
4759 Gln Lys Gln Asp Gly Gly Leu Tyr Thr Leu Ser Leu Gly Asn Glu Phe  
4760 26900 26905 26910  
4761 Gly Ser Asp Ser Ala Thr Val Asn Ile His Ile Arg Ser Ile  
4762 26915 26920 26925

VERIFICATION SUMMARY                      DATE: 01/29/2001  
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Input Set : A:\00786.381002.SEQLIST.TXT  
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L:11 M:270 C: Current Application Number differs, Replaced Current Application No  
L:11 M:271 C: Current Filing Date differs, Replaced Current Filing Date  
L:2654 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2  
M:332 Repeated in SeqNo=2